

Nexus between triple bottom line and economic development:

An exploratory analysis of economic, environmental e social dimensions

Elisabete dos Santos Nogueira

Doutoramento

**Nexus between triple bottom line and economic development:
An exploratory analysis of economic, environmental and social
dimensions**

Orientação: Professora Doutora Sofia Elisabete Ferreira Gomes

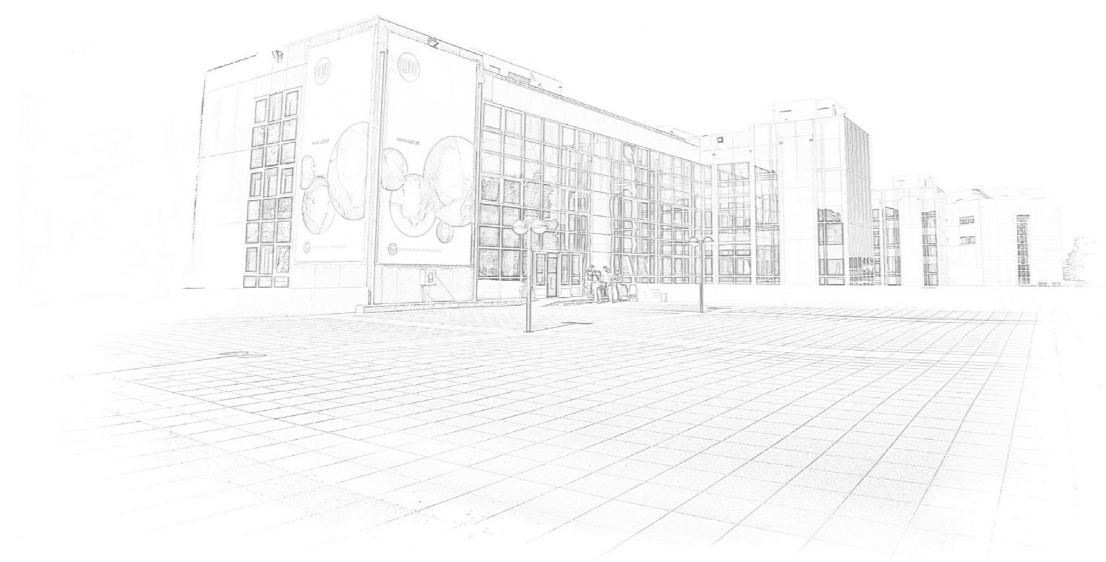
Outubro, 2023



UNIVERSIDADE PORTUCALENSE

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Elisabete dos Santos Nogueira

**NEXUS BETWEEN TRIPLE BOTTOM LINE AND
ECONOMIC DEVELOPMENT:
An exploratory analysis of economic,
environmental and social dimensions**

Dissertação de Doutoramento na área das Ciências Empresariais orientada pela Senhora Professora Doutora Sofia Elisabete Ferreira Gomes e coorientada pelo Senhor Professor Doutor João Nuno Morais Lopes e apresentada ao Departamento de Economia e Gestão da Universidade Portucalense.

Outubro, 2023

DEDICATORY

*Ao Alcides Passarinho,
Meu amigo, meu eterno sogro.*

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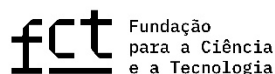
The path of this thesis began with a single step and involved numerous locations and individuals. Given that it is impractical to list all the contributions to this investigation, I'm left to identify some noteworthy collaborations.

I would like to express my sincere gratitude to Professor Sofia Gomes and Professor João Lopes for their invaluable guidance, unwavering support and specialized supervision provided throughout the process of completing this thesis. Your constructive criticism, meticulous review of my work, and insightful feedback have not only improved the content of this thesis but also deepened my understanding of the subject. I greatly appreciate the extensive hours that you have dedicated this work. Your guidance was fundamental in my academic career, and I am very proud to have been under your orientation.

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ABSTRACT

Recent global events, such as Covid-19 and the conflict in Ukraine, have disrupted the notion of a sustainable society, resulting in apprehension and economic uncertainty. These multifaceted crises have caused increased unemployment rates and heightened poverty levels, further enhancing existing concerns regarding societal welfare. Consequently, sustainability has gained significant prominence, compelling enterprises to adopt sustainable practices to maintain competitiveness.

The triple bottom line framework has risen in importance as an indispensable tool for holistically addressing sustainability concerns. It places equal emphasis on the economic, environmental, and social dimensions, presenting a comprehensive approach that fosters sustainability, resilience, and innovation. It acknowledges the intrinsic connection between companies' achievements and society's overall well-being, while strengthening companies competitive positioning.

The general objective of this thesis is to understand the influence that triple bottom line, and that each of its dimensions, economic, environmental and social, can exert on economic development. Establishing business strategies that will enable companies to achieve greater positive outcomes, while contributing to the Sustainable Development Goals. A profound understanding of these relations is imperative for ensuring enduring success in an ever-evolving global landscape.

In order to achieve the proposed objective, a typology of mixed research, as outlined in Chapters 2 to 6, was employed. The research encompasses the deductive process and five studies that employ the following methodology: 1) bibliometric study; 2), 3) and 5) multiple linear regression models; and 4) meta-regression.

Examining the results obtained, it has been established that the triple bottom line acts as an effective partner in the pursuit of boosting economic development, as well as contributing to the enhancement of sustainable outcomes. The three dimensions of the framework are geared towards achieving a unified goal, thereby enhancing firms' performance.

Theoretical frameworks that extend beyond the confines of economic sustainability, embracing the broader facets of environmental preservation and social well-being, are presented. Moreover, the research bridges the gap between theoretical constructs and practical application. Practical insights for both corporate entities and governmental bodies are provided to facilitate the translation of theoretical insights into concrete strategies.

In summary, this thesis highlights the growing significance of sustainability in the contemporary business landscape, while it is focused on advancing theoretical understanding, practical application, and the scientific foundations of triple bottom line within the realm of the economic development.

Keywords: Triple bottom line; economic development; economic dimension; environmental dimension; social dimension.

NEXUS ENTRE TRIPLE BOTTOM LINE E DESENVOLVIMENTO ECONÓMICO:

Uma análise exploratória das dimensões económica, ambiental e social

RESUMO:

Os recentes acontecimentos globais, como a COVID-19 e o conflito na Ucrânia, perturbaram a noção de uma sociedade sustentável, resultando em apreensão e incerteza económica. Estas crises multifacetadas causaram o aumento das taxas de desemprego e dos níveis de pobreza, ampliando ainda mais as preocupações existentes em relação ao bem-estar social. Consequentemente, a sustentabilidade ganhou um destaque significativo, obrigando as empresas a adotarem práticas sustentáveis para manter a competitividade.

O *framework* do triple bottom line ganhou importância como uma ferramenta indispensável para abordar de forma holística as preocupações de sustentabilidade. Coloca igual ênfase nas dimensões económica, ambiental e social, apresentando uma abordagem abrangente que promove a sustentabilidade, a resiliência e a inovação. Reconhece a ligação intrínseca entre as realizações das empresas e o bem-estar geral da sociedade, ao mesmo tempo que fortalece o posicionamento competitivo das empresas.

O objetivo geral desta tese é compreender a influência que a triple bottom line, e que cada uma das suas dimensões, económica, ambiental e social, pode exercer no desenvolvimento económico. Estabelecendo estratégias empresariais que permitirão às empresas alcançar resultados mais positivos, ao mesmo tempo que contribuem para os Objetivos de Desenvolvimento Sustentável. Uma compreensão profunda destas relações é imperativa para garantir um sucesso duradouro num cenário global em constante evolução.

Para atingir o objetivo proposto, foi empregue uma tipologia de pesquisa mista, conforme descrita nos Capítulos 2 a 6. A pesquisa abrange o processo dedutivo e cinco estudos que empregam a seguinte metodologia: 1) estudo bibliométrico; 2),3) e 5) modelos de regressão linear múltipla; e 4) meta-regressão.

Examinando os resultados obtidos, constatou-se que a triple bottom line funciona como um parceiro eficaz na prossecução da dinamização do desenvolvimento económico, bem como contribui para a melhoria de resultados sustentáveis. As três dimensões do *framework* estão orientadas para alcançar um objetivo unificado, melhorando assim o desempenho das empresas.

São apresentados quadros teóricos que vão além dos limites da sustentabilidade económica, abrangendo as facetas mais amplas da preservação ambiental e do bem-estar social. Além disso, a pesquisa preenche a lacuna entre as construções teóricas e a aplicação prática. São fornecidas percepções práticas para as entidades corporativas e os órgãos governamentais para facilitar a tradução de percepções teóricas em estratégias concretas.

Em resumo, esta tese destaca a importância crescente da sustentabilidade no cenário empresarial contemporâneo, ao mesmo tempo que se concentra no avanço da compreensão teórica, na aplicação prática e nos fundamentos científicos da triple bottom line no domínio do desenvolvimento económico.

Palavras-chave: Triple bottom line; desenvolvimento económico; dimensão económica; dimensão ambiental; dimensão social.

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PART I

CHAPTER 1 – INTRODUCTION

1.1 Motivation and Rationale

The notion of a sustainable society has been shattered by the recent events that have impacted our planet. The repercussions of COVID-19 and the war in Ukraine have sparked widespread concern and pain. In addition to political and economic uncertainty, they brought social and economic costs that will be felt in the coming years (Cooke et al., 2022). Political and economic uncertainty emerged, along with the apprehension of a broader shift in the economy, resulting in a loss of employment and an increase in poverty (Grum & Babnik, 2022). The events also resulted in a fluctuation in the prices of commodities derived from natural resources (W. Liu & Chen, 2022). Many countries are facing an energy crisis due to price instability and limited availability of natural resources (Chofreh et al., 2021).

Furthermore, the escalating public concern for the preservation and enhancement of the natural environment has transformed environmental responsibility into a novel tactical approach to enhance business competitiveness (Ammer et al., 2020; Jorge et al., 2015). The significance of implementing environmentally-friendly practices is increasing on a daily basis (D'Souza et al., 2022; Mitra, 2022). Additionally, companies are progressively under pressure to communicate their progress in the direction of sustainable development (Subramaniam et al., 2023). The necessity to innovate plays a pivotal role in the survival of the enterprise and contributes to the advancement of sustainability and cleaner procedures (Paruzel et al., 2023).

Nevertheless, for a considerable period, there have been divergent perspectives regarding sustainability and the advancement of economic activity (B. Peng et al., 2020). However, these circumstances have highlighted the importance of the implementation of sustainable initiatives for sustainable economic development (Polcyn et al., 2022). In a time of significant environmental challenges, social inequality, and transforming consumer expectations, the traditional corporate approach of solely focusing on profit maximization is proving inadequate. Therefore, it is essential to comprehend the significance of sustainability in economic development.

To attain or maintain sustainability, companies must acquire the ability to manage their own development (Sari et al., 2020). The achievement of the sustainability targets stipulated by the 2030 Agenda is a major challenge for businesses. Companies' quest to respect legal impositions and to obtain competitive advantages is reflected in the

incorporation of sustainability into their business strategy. (C. M. J. Lee et al., 2021). In a time of significant environmental challenges, social inequality, and transforming consumer expectations, the traditional corporate approach of solely focusing on profit maximization is proving inadequate. According to the most recent international guidelines, a holistic and integrated approach is required to address the traditional consequences of business activity on the economy, environment, and society (V. Z. Chen et al., 2022). The triple bottom line framework is one of the tools available to companies to address the sustainability issues. That, must be considered when evaluating firms' performance (Elkington, 1997, 2006). Triple bottom line encompassing perspective goes beyond the narrow scope of financial metrics and prompts companies to consider broader implications. Triple bottom line is presented as a framework wherein the attainment of corporate success is achieved through the balance of the economic, environmental and social dimensions (Elkington, 2006). Furthermore, these dimensions are analysed as value drivers for business (Isil & Hernke, 2017; Tseng et al., 2018). Each of the three triple bottom line dimensions aligns with sustainable development principles: the economic prosperity refers to the standard of living achieved through the productive capacity of organizations; the environmental integrity is linked to the limited capacity of an ecosystem to regenerate; and the social equity pertains to the entitlement of all stakeholders to access resources (Tseng et al., 2018). The triple bottom line concept asserts that the treatment of the three dimensions holds equal significance (Gu & Wang, 2022; Hahn et al., 2015; Howard et al., 2022; Hubbard, 2009; Kiel et al., 2017; Montabon et al., 2016). It is imperative to take them into account when conducting a comprehensive analysis of sustainability (Chabowski et al., 2011; Hahn et al., 2015; Hubbard, 2009).

Triple bottom line is recognized as a transformative force within the corporate world. Its holistic approach addresses the complex interactions between organizations economic, environmental, and social dimensions, fostering sustainability, resilience, and innovation. It should be incorporated into the language of the companies (G. Kumar & Goswami, 2019). Now not only a moral imperative, but also a strategic necessity, for business to embrace triple bottom line principles in order to achieve their success and ensure a harmonious and prosperous future. Firms should understand the opportunities triple bottom line activities provide to strengthen their competitive advantage and strategic position (Ferro et al., 2019). As businesses recognize the symbiotic relationship between their success and societal well-being, embracing triple bottom line principles becomes not only a moral imperative but a strategic necessity for a harmonious and prosperous future.

Although triple bottom line has gained increasing popularity among managers and academics due to its perceived positive influence on competitiveness (He et al., 2019) it remains imperative to comprehend its primary components (Rosli et al., 2019). The level of concern regarding the analysis of the factors and reasons that impact the profitability and sustainability of companies has been on the rise (Lajnef & Ellouz, 2022). Triple bottom line has received little attention in the economic development field, despite its increasing prevalence in disciplines that relate to that scientific area (Hammer & Pivo, 2017). The research aimed at integrating triple bottom line into sustainable development is very sparse (W. Liu et al., 2017). The integrative nature of triple bottom line objectives prompted the necessity to investigate the relationship between the implemented measures and the outcomes obtained (Collste et al., 2017).

Understanding in what manner does the forces that make up the economic dimension of triple bottom line function is of vital importance (Nogueira et al., 2022). There is also a requirement for supplementary research to enhance the understanding of corporate financial levers that can facilitate sustainability profitability (Cupertino et al., 2022), to comprehend the relation between sustainable business practices and corporate financial performance (Alshehhi et al., 2018), and to focus on the evaluation of the financial sustainability of companies (Zabolotnyy & Wasilewski, 2019). Financial sustainability is a crucial control factor, yet it remains underrepresented in business management practices and research (Gleißner et al., 2022).

There is a need to further explore the role of the environmental dimension of triple bottom line (Nogueira et al., 2022). The relationship between embracing environmentally-friendly practices and the performance of companies is still ambiguous (Agyabeng-Mensah, Ahenkorah, Afum, et al., 2020; Agyabeng-Mensah, Ahenkorah, Afum & Owusu, 2020; E. L. Li et al., 2017). Previous literature on that connection is sparse (M. Khan et al., 2021). Furthermore, there is a persistent need to study the relationship between environmental sustainability practices and organizational performance (Malesios et al., 2021). The current research does not establish whether it's worthwhile to adopt a green approach (van Emous et al., 2021). The debate on the difficulties of assessing the sustainable performance of companies needs to be maintained (Nogueira et al., 2023).

The social dimension of triple bottom line is still underrepresented in management theories and practices (Tate & Bals, 2018). Previous studies have identified the dearth of analyses regarding the influence of social value on companies (Certo & Miller, 2008; Mair & Martí, 2006; Murphy & Coombes, 2009; Narangajavana et al., 2016), despite the heightened interest of academics in organisational performance

in the past decade (Fetrati et al., 2022). It is therefore important to understand social sustainability (Ajmal et al., 2018).

It is essential for companies to understand the influence of Triple bottom line on economic development. It broadens their scope beyond solely financial outcomes to encompass societal and environmental ramifications. This broader perspective facilitates the formulation of balanced decisions that consider long-term viability and risk management. Additionally, it enhances companies' reputation, attracts conscious consumers and investors, and drives innovation. By embracing the triple bottom line, corporations can align with global goals, comply with regulations, and contribute to a more sustainable future, ultimately ensuring their own success in an interconnected world.

This thesis seeks to contribute to the enhancement of the knowledge that surrounds the sustainability intricate issues. And to provide a distinct perspective on the triple bottom line, its contributions to economic development, and the challenges it presents for academia, the business world, and society.

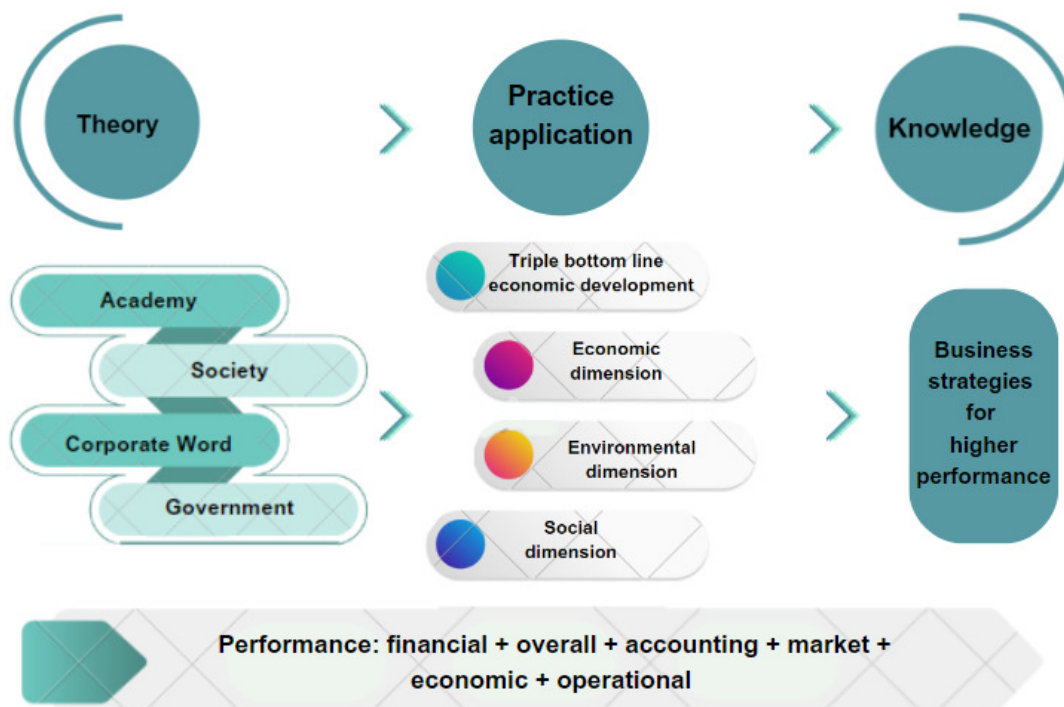
The research presented herein contributes to the comprehension of the influence exerted by the triple bottom line upon the tenets of sustainable development, thereby facilitating the cultivation of a comprehensive vantage point regarding societal advancement that transcends mere economic metrics. This understanding empowers us to formulate judicious choices that guarantee a harmonized equilibrium among economic, social, and environmental deliberations, thereby culminating in a future characterized by enhanced prosperity and heightened resilience.

1.2 Objectives of the work

As the title of this thesis states, the interplay between the triple bottom line and economic development is the fundamental focus of the research. This doctoral thesis is fundamentally centred on the pursuit of several key purposes, whose outcomes are expected to significantly impact the field of sustainable development. This thesis is driven by the goal of advancing theoretical comprehension, with a specific focus on the application of triple bottom line principles within the context of sustainable development. The purpose is to provide valuable insights and construct robust theoretical frameworks that illuminate the effective utilization of triple bottom line, not solely as a means to achieve economic sustainability but also as a comprehensive approach encompassing environmental preservation and social well-being. Furthermore, this research endeavours to extract practical implications from the conceptual insights. It aims to bridge the gap between theory and practice by

demonstrating how these insights can be incorporated into concrete strategies for both corporate entities and governmental bodies. This encompasses the formulation of recommendations that are tailored to the needs of the public sector, the development of policy frameworks, and the alignment of corporate strategies with the fundamental tenets of triple bottom line. Another paramount purpose is to contribute to the grounding of the evolution of triple bottom line in a robust legal framework underpinned by rigorous scientific considerations. This reflects an unwavering commitment to a methodical and well-founded approach in the pursuit of sustainability objectives. Finally, this thesis seeks to foster a holistic perspective that transcends conventional economic metrics. It argues that sustainability entails diverse motivations and objectives, necessitating the active engagement of all stakeholders. In essence, the goal is to present a comprehensive vision of sustainable development that encompasses economic, environmental, and social dimensions, with the ultimate aim of fostering prosperity and resilience in the future. Highlighting strategies that allow businesses to contribute to Sustainable Development Goals while achieving a higher level of performance. The thesis core model (Figure 1) reflects this analytical approach and aims to contribute to the development of this field of research.

Figure 1 - Core Doctoral Thesis Model.



Source: Own elaboration.

The general objective of this thesis is to understand the influence that triple bottom line, and that each of its dimensions, economic, environmental and social, can exert on economic development, establishing business strategies that will enable companies to achieve greater positive outcomes while contributing to the Sustainable Development Goals.

Based on the main objective, the following specific objectives were defined: 1) Identify the literature that relates triple bottom line, economic development and sustainability with the concepts of competition, decision making, planning and performance; 2) To analyse the influence of triple bottom line on economic development, from 2006 to 2019, in the Organisation for Economic Co-operation and Development; 3) Analyse the influence of the economic dimension of triple bottom line on corporate financial performance; 4) Clarify the influence of the environmental dimension of the triple bottom line on the performance of companies; 5) Explore the influence of the social dimension of triple bottom line on organizational performance. Bearing in mind the problems to be investigated and the objectives to be met, a relationship can be established between the research questions and the proposed objectives (Table 1).

Table 1 - Research questions and proposed objectives.

Objectives Chapters	Objective 1 Chapter 2	Objective 2 Chapter 3	Objective 3 Chapter 4	Objective 4 Chapter 5	Objective 5 Chapter 6
Research Questions	Identify the literature that relates triple bottom line, economic development and sustainability with the concepts of business strategy (competition, decision making, planning and performance).	Analyse the influence of triple bottom line on economic development, from 2006 to 2019, in Organisation for Economic Co-operation and Development.	Analyse the influence of the economic dimension of triple bottom line on corporate financial performance.	Clarify the influence of the environmental dimension of triple bottom line and environmental sustainability practices on the performance of companies, in their various measures.	Explore the influence of the social dimension of triple bottom line on organizational performance.
What is the relationship between the three dimensions of triple bottom line and economic development?	✓				
How can business organizations, through their business strategies, leverage the benefits of triple bottom line in economic development?	✓				
What is the relationship between the sustainable actions adopted and outcomes achieved?		✓			
Will applying the economic dimension of triple bottom line achieve financial sustainability?			✓		
What is the relationship between firms' value creation and firms' continuity with financial sustainability?			✓		

Objectives Chapters	Objective 1 Chapter 2	Objective 2 Chapter 3	Objective 3 Chapter 4	Objective 4 Chapter 5	Objective 5 Chapter 6
Research Questions	Identify the literature that relates triple bottom line, economic development and sustainability with the concepts of business strategy (competition, decision making, planning and performance).	Analyse the influence of triple bottom line on economic development, from 2006 to 2019, in Organisation for Economic Co-operation and Development.	Analyse the influence of the economic dimension of triple bottom line on corporate performance.	Clarify the influence of the environmental dimension of triple bottom line and environmental sustainability practices on the performance of companies, in their various measures.	Explore the influence of the social dimension of triple bottom line on organizational performance.
What will be the influence of the environmental dimension of triple bottom line on the performance of companies?				✓	
Environmental sustainability practices exert the same kind of influence on different measures of company performance: (i) the overall performance, (ii) the accounting-based, (iii) the market-based, (iv) the economic-based and (v) the operational-based firm performance?				✓	
Does social sustainability influence organisational performance?					✓
Does social sustainability act as a mediating element in the relationship between organisational performance and human resource practices?					✓

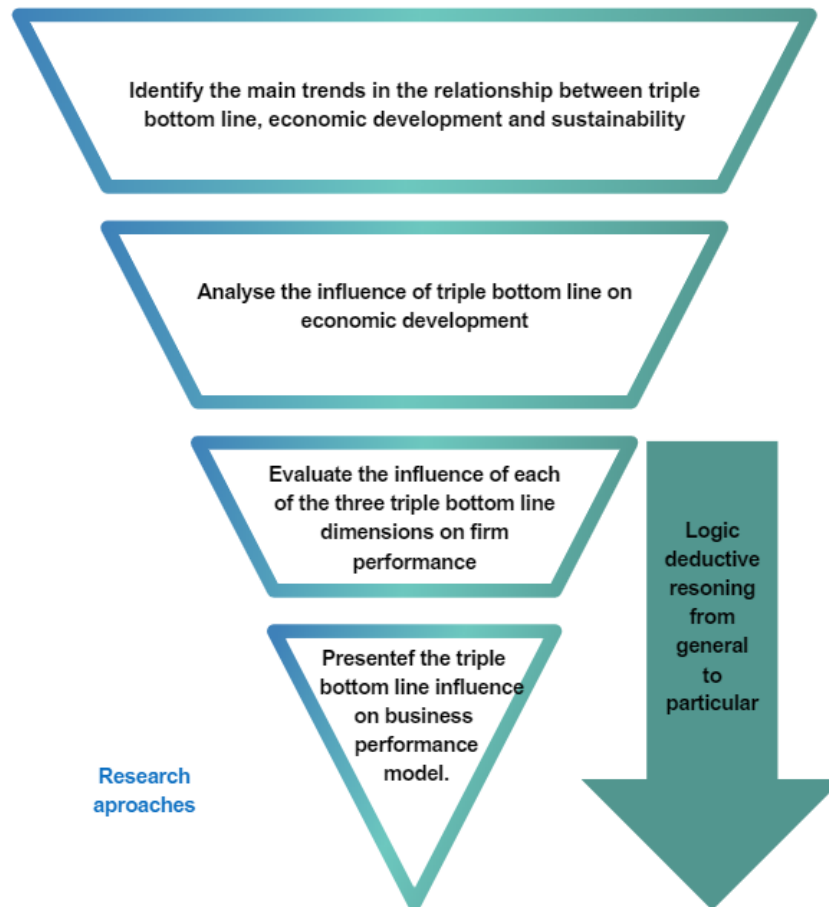
Source: Own elaboration.

1.3 Methodology

In the analysis of the way in which knowledge is created and developed, discussions about epistemology are common (C. F. Johnson, 1996). The objective of scientific reasoning is to justify new knowledge in a scientific field (Mantere & Ketokivi, 2013). Relying on Aristotle, Peirce (1997), describes three forms of reasoning: abduction, induction and deduction. The abductive reasoning relies on plausible knowledge claims, subject to continuous review and provisionally maintained (Behfar & Okhuysen, 2018). It is concerned with moving from specific observations to particular explanation (Behfar & Okhuysen, 2018). In turn, in inductive studies, knowledge claims are made, which assume that it is not likely that the premises are true and the conclusions are false (Hurley, 2014). The deductive reasoning is described as moving from general theory to a specific prediction and inductive reasoning is presented as moving from specific cases to a general theory or explanation. In deductive studies, hypotheses are tested, establishing greater certainty, because if the premises are true, the conclusions will also be true (Hurley, 2014). Essentially, abductive reasoning offers a plausible explanation, inductive reasoning offers a probable explanation and deductive reasoning offers a certain explanation (Mantere & Ketokivi, 2013).

Knowing that the adequacy and rigour of the research methods will impact the results of the studies (Scandura & Williams, 2000), great attention and rigour were paid to the selection of the scientific method that supports this thesis. The construction of this thesis follows a chain of descending reflection that starts from a general theoretical framework for studies in particular, thus following the deductive process (Figure 2).

Figure 2 - Research scientific method.



Source: Own elaboration.

1.3.1 Approaches in individual chapters

Each of the chapters adopted a different approach. The Part II effectively condenses the study, and the methodologies adopted in its chapters are elucidated in Table 2. Following are further explanations of this thesis strategy.

Chapter 1 presents the introduction of this thesis and in Chapter 7 the general conclusions are presented.

Table 2 - Systematization of the adopted methodology.

Chapter	Methodology
Chapter 2	Bibliometric study - VOSviewer version 1.6.17.
Chapter 3	Quantitative - Eviews10 software - multiple linear regression models, using generalized method of moments.
Chapter 4	Quantitative - Eviews10 software - multiple linear regression models, using generalized method of moments.
Chapter 5	Quantitative - Comprehensive Meta-Analysis software – meta-regression.
Chapter 6	Quantitative - SPSS v.25 - statistical analysis; Smart PLS 4.0 software - Partial Least Squares method.

Source: Own elaboration.

Chapter 2 is based on a bibliometric approach and is therefore conceptual research. The analysis took two approaches. First, a analysis was conducted to examine the evolution of publications, the co-occurrence of keywords, and the relationship between bibliographic elements. Second, a qualitative analysis was conducted based on a content analysis of the clusters. This permitted the development of a conceptual model that would allow for reflection on the synergies between the three dimensions of triple bottom line and business strategy concepts. Bibliometrics is an increasingly relevant field (Milojevic et al., 2011) as bibliometric analysis is often robust in issues surrounding key words (Zhi et al., 2015). Six steps were performed. 1) On April 2, 2023, the Web of Science, considered a central source of information in the field of social sciences (Z. Liu et al., 2015) was chosen for sample identification and study delimitation. With the time period from 1996 to 2023. 2) A search and collection of studies was carried out by topic (title, abstract, keywords), with the terms: "Triple bottom line" and Sustainab* and "Economic development"; or "Triple bottom line" and performance; or "Triple bottom line" and planning; or "Triple bottom line" and decision making*; or "Triple bottom line" and competition*. 3) Removal of duplicates. 4) Selection of document types: articles and reviews. 5) Selection of articles written in English. And 6) choice of Web of Science research categories/areas: business, administration and economics, according to Thirumaran et al., (2021). In this way, 350 articles were gathered for analysis. VOSviewer version 1.6.17 was used to perform the co-occurrence analysis, and the bibliometric coupling map.

In chapter 3, the sample involved panel data and quantitative methodology was used, as described by Jain and Nagpal (2019) and Mance and Kruni (2021). A statistical analysis of the dependent and independent variables was performed. This

was followed by testing the hypotheses formulated through the estimation of five multiple linear regressions, using the generalized method of moments, as the sample involved panel data. The hypotheses formulated were tested in the Eviews10 software. A sample of 38 Organisation for Economic Co-operation and Development countries and the period from 2006 to 2019 were considered. Human Development Index was used as a proxy for economic development, the three dimensions (human wellbeing, environmental wellbeing, and economic wellbeing) and the seven categories (basic needs, personal development and health, well-balanced society, natural resources, climate and energy, transition, and economy) of the Sustainable Society Index represented the triple bottom line and were the independent variables. Human Development Index data were collected from the United Nations Development Programme (United Nations Development Programme (UNDP), 2022) and Sustainable Society Index data from the Technische Hochschule Köln (Technische Hochschule Köln (THK), 2022).

The study in chapter 4 also used a quantitative methodology. A data panel was built with accounting information from companies collected in the SABI database for the period from 2010 to 2020. Three multiple linear regressions were estimated by applying the generalized method of moments. Financial companies were excluded because their accounting has very specific aspects that are not comparable with non-financial companies. The firms considered in the sample are Portuguese, small, medium and large and that are in active status. It was gathered the financial information of 70,057 companies, of which 17,657 were small companies, 49,371 medium-sized companies and 3,029 large companies. The criteria for aggregating companies by size follows the official recommendations of the European Union. The hypotheses were tested using Eviews software (IHS Markit, Irvine, United States of America).

In chapter 5 the applied quantitative methodology allows the integration of results from multiple studies. Thus, a meta-regression was presented. Meta-analytical techniques are essential to consolidate the field's state-of-knowledge and to understand past inconclusive results (Post et al., 2020). To counter the different scales used in the various studies, the selection of the type of effect size fell on the correlation (a measure of unbiased estimator according to Govindan et al., 2020) to explore relationships between variables. The heterogeneous results of 96 studies (taken from the Web of Science) were synthesized using meta-regression analyses, from which data on 339 effects were collected. The meta-regression was performed using Comprehensive Meta-Analysis software (from Biostat, Englewood, United States of America). Regardless of the number of studies, the Comprehensive Meta-Analysis software can be used (Borenstein et al., 2022). Unlike previous studies that consider

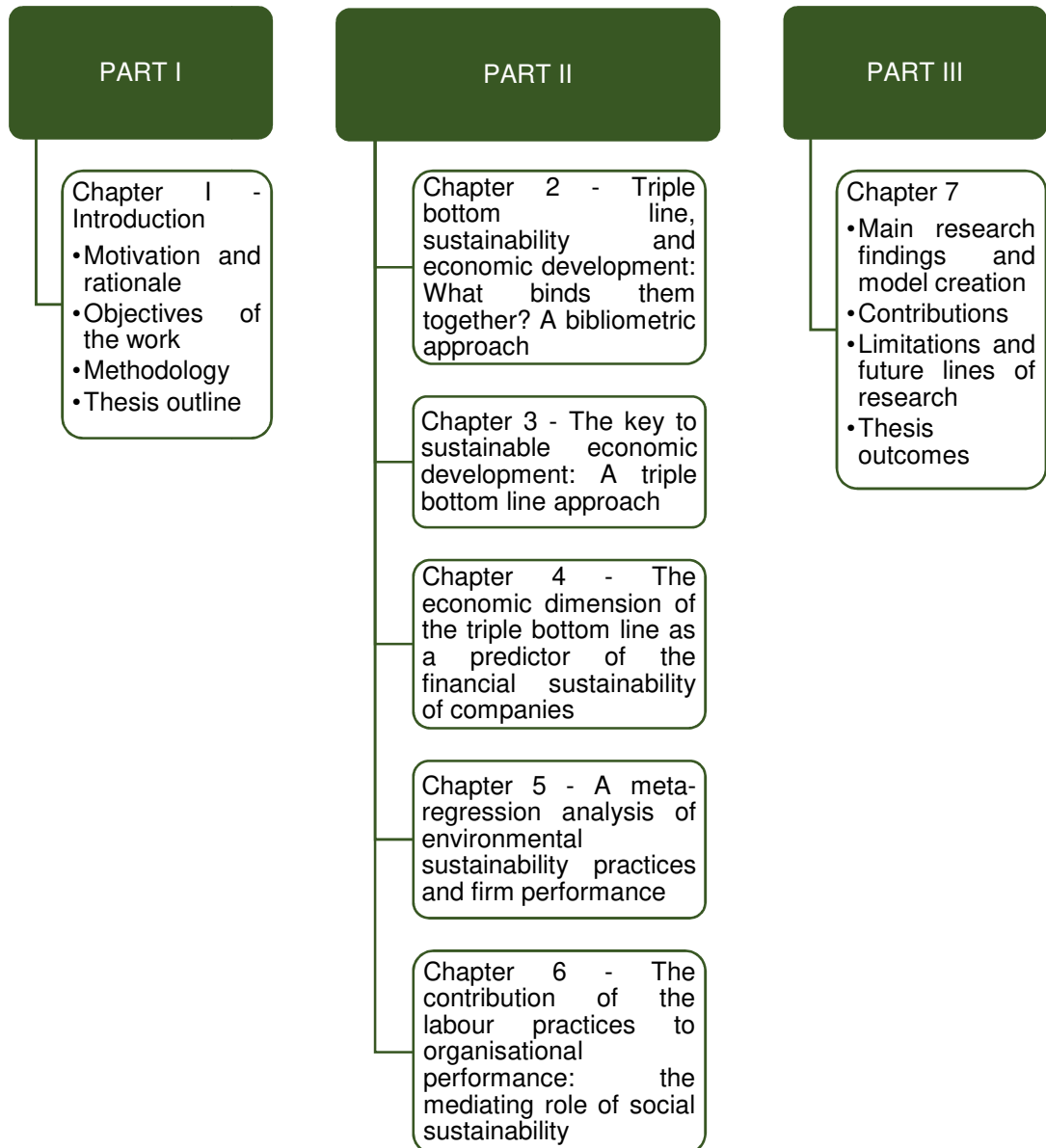
performance a one-dimensional construct, this study takes an original approach to performance. Effects were analysed on five different performance measures: (i) the overall performance, (ii) the accounting-based, (iii) the market-based, (iv) the economic-based and (v) the operational-based firm performance. Indirect effects were also explored.

In chapter 6 it was also applied a quantitative methodology. The sample was collected through a questionnaire to Portuguese workers, available online, between April and September 2022. The questionnaire was published through the authors' social networks (Facebook, LinkedIn and Instagram). It was guaranteed that the participants would understand the questions through a pre-test carried out with 15 participants. 574 valid responses were obtained. Six groups of questions were adapted for the questionnaire. The first group (i) was adapted from Staniškienė and Stankevičiūtė (2018) and gathered information regarding sociodemographic characteristics. In the remaining groups, the employees' perceptions were evaluated concerning: (ii) employee development (adapted from Holtbrügge et al. (2015) and Staniškienė and Stankevičiūtė (2018)); (iii) employee participation (adapted from Cheng (2021) and Staniškienė and Stankevičiūtė (2018)); (iv) equal opportunity (adapted from Nie et al. (2018), Rodríguez-Ariza et al. (2017) and Staniškienė and Stankevičiūtė (2018)); (v) social sustainability (adapted from Hale et al., 2019); and (vi) organisational performance (adapted from Claver-Cortés et al. (2020) and Y. Yu and Choi (2014)). To measure the questions, a five-point Likert scale was adopted, in which one corresponds to Strongly Disagree and five to Totally Agree. The statistical analysis of the constructs proposed in the research model was carried out in SPSSv.25. Then, the Partial Least Squares method in Smart PLS 4.0 (Ringle et al., 2022) was used to evaluate the hypotheses formulated.

1.4 Thesis outline

This thesis is structured in three parts (Figure 3). Part I consists of Chapter 1 – Introduction. In this chapter, the motivation and rationale, the objectives of the work, the methodology and the thesis outline are presented.

Figure 3 - Thesis outline.



Source: Own elaboration.

Part II consists of five chapters, which are interrelated and contribute to the main objective of the thesis. They are: Chapter 2 - Triple bottom line, sustainability and economic development: What binds them together? A bibliometric approach; Chapter 3 - The key to sustainable economic development: A triple bottom line approach; Chapter 4 - The economic dimension of the triple bottom line as a predictor of the financial sustainability of companies; Chapter 5 - A meta-regression analysis of environmental sustainability practices and firm performance; and, Chapter 6 - The contribution of the

labour practices to organizational performance: The mediating role of social sustainability. In each of these chapters, a study is presented that focuses on each of the five specific objectives. Finally, Part III presents the Chapter 7 - Conclusion, where the main research findings, the proposed model, contributions to theory and practice, research limitations and future lines of research are presented. At the end of this chapter, the studies that make up the body of work of this thesis that have already been published are presented.

Part II

CHAPTER 2 - TRIPLE BOTTOM LINE, SUSTAINABILITY AND ECONOMIC DEVELOPMENT: WHAT BINDS THEM TOGETHER? A BIBLIOMETRIC APPROACH

Abstract:

The importance given to sustainable development paved the way for the development of the triple bottom line concept. Triple bottom line is vital for the assessment of nations' economic development beyond traditional economic measures. Despite this relevance, few studies still seek to deepen our understanding of the interaction between triple bottom line and economic development. Thus, this bibliometric study aimed to analyse the relationship between triple bottom line, sustainability, and economic development, adding business strategy concepts such as competitiveness, decision making, planning, and performance. We intended to reinforce the extension of triple bottom line's dominant rhetoric to sustainable economic development. The results revealed the relationship between triple bottom line and economic development and allowed the identification of four clusters, from which a theoretical–conceptual model of the theory and application of triple bottom line to achieve economic development was formulated. This model can be adopted for the consolidation of economic development through the triple bottom line framework and as a tool to support business strategy related to obtaining competitive advantage; decision making; planning; and stimulating economic, social, and environmental performance.

Keywords: Triple bottom line; economic development; sustainability; social competitiveness; environmental decision-making; economic planning.

2.1. Introduction

Health in the 21st century is threatened across the planet by climate change (Costello et al., 2009; Talbot et al., 2022). Sustainability has become mandatory in academia and corporate boardrooms (Z. Ullah et al., 2021). Stakeholders have pressured companies to abandon the economistic view and adopt the triple bottom line (Martinez-Ferrero et al., 2015). The triple bottom line framework translates the companies' value-creation activities related to corporate sustainability (C. H. Chang, 2020; Döll et al., 2022; Su et al., 2022; van Lieshout et al., 2021; J. Y. Yang & Roh, 2019). The triple bottom line construct, or sustainability tripod, designed by Elkington, emerged in 1996 (Elkington, 2006). The triple bottom line is an accounting structure (Law, 2015) used to assess sustainability (Nevado-Peña et al., 2015). Presented as a conceptual framework where corporate success is granted by balancing the performances of the economic, environmental and social dimensions (Elkington, 2006), also identified as the 3 Ps, profit, planet and people, where those dimensions are analysed as value drivers for business (Isil & Hernke, 2017; Tseng et al., 2018). Each of the three dimensions of triple bottom line is in line with sustainable development principles: economic prosperity refers to the quality of life achieved through the productive capacity of organisations; environmental integrity is linked to the limited capacity of an ecosystem to regenerate, and social equity concerns the right of all stakeholders to access resources (Tseng et al., 2018). The sustainable development results from economic development (Porter, 2000). Economic development is generated in creative destruction (Schumpeter, 1934) and represents a succession of qualitative economic changes (Schumpeter, 1947). Triple bottom line advocates that treating its three dimensions equally is important (Gu & Wang, 2022; Hahn et al., 2015; Howard et al., 2022; Hubbard, 2009; Kiel et al., 2017; Montabon et al., 2016). And it must be considered when analysing sustainability in an integral way (Chabowski et al., 2011; Hahn et al., 2015; Hubbard, 2009). Triple bottom line translates as the dominant idea when thinking about the relationship between the business environment and the theme of sustainability (Milne & Gray, 2013).

Globally, sustainability is a gradually important topic, and triple bottom line is commonly adopted as the framework that indicates to companies which strategies are necessary for them to become sustainable (Yun et al., 2019). The positive impact that triple bottom line has on companies' competitiveness has increased managers' support for this framework (He et al., 2019). Triple bottom line 's sustainable practices can promote economic growth and improve companies' competitive advantage (Gu & Wang, 2022). Planning is another way to improve efficiency and increase the success

of organisations' initiatives (K. Johnson et al., 2004). Company planning represents corporate decision-making towards the ultimate goal of maximising profits (Gu & Wang, 2022). Decision-making is part of integrated thinking that promotes value creation and sustainability (Maroun et al., 2022). Thus, the paradigm shift from traditional business performance measurement to one of triple bottom line is required for sustainable business growth (Usmani et al., 2022). Especially now that profitability is no longer the only measure of an organisation's success, it also embodies sustainability results (Mathur & Berwa, 2017). And so, sustainable strategic management encompasses the economic value and the value of social and natural capital (Gregory et al., 2021).

In addition to these conclusions, we must also consider that sustainability is a great predecessor of thriving businesses allowing to obtain a competitive advantage, and the future requires the understanding of its main elements, economy, environment and society, which can lead to the improvement of the performance of organisations (Rosli et al., 2019). Concern with analysing the factors and reasons that affect the profitability and sustainability of companies has been increasing (Lajnef & Ellouz, 2022). The development of triple bottom line underlines the need to study it holistically (Hammer & Pivo, 2017; Isil & Hernke, 2017; Solaimani & Sedighi, 2020; Walker et al., 2020), and its interrelationships (Y. Huang et al., 2022). Because nowadays, in business and society, the development and management of sustainability are key (Suh & Lee, 2018). Sustainable practices have economic advantages and business activities must be legitimised (López-Pérez et al., 2018). As the literature has not yet clearly measured triple bottom line (Suandi et al., 2022) there is a need for literature reviews that develop holistic and comprehensive concepts (Casagrande et al., 2023). Academics and practitioners would benefit from an improved understanding of corporate sustainability goals (Palmer et al., 2022). To fill this gap, this study includes a bibliometric analysis and a qualitative content analysis that enables an understanding of the synergies of the most important concepts. It gathers the most relevant literature and allows the proposal of a theoretical-conceptual model. It's a step forward in the comprehension of key concepts in sustainable business strategy.

Although triple bottom line is increasingly prevalent in the disciplines that report to economic development, it has received little attention in this field (Hammer & Pivo, 2017). Recent reviews discuss: the implementation of triple bottom line in small and medium-sized enterprises (Kutzschbach et al., 2021), the impact of the integration of management systems in triple bottom line (de Nadae et al., 2021) and how traceability in global supply chains collaborates to achieve sustainability (Garcia-Torres et al., 2019). But research integrating triple bottom line into sustainable development is very scarce (W. Liu et al., 2017). As far as is known, there is no bibliometric review relating

sustainability triple bottom line, economic development, sustainability, performance, planning, decision-making and competitiveness. This attests to the originality and relevance of the analysis and it deepens knowledge about triple bottom line, providing economic development theories with an environmental dimension.

Furthermore, in practical terms, there is an urgent need to define a triple bottom line application model to achieve the economic development of nations, demonstrating business organisations' role in this context by defining business strategies based on the triple bottom line link to economic development. Thus, the present study aims to present a bibliometric literature review that relates the concepts of triple bottom line, economic development, sustainability and the concepts of competition, decision-making, planning and performance of business organisations. Thus, we formulated two research questions: (1) What is the relationship between the three dimensions of triple bottom line in economic development? (2) How can business organisations leverage the benefits of triple bottom line in economic development through their business strategies?

This analysis embraces two approaches. First, a analysis was carried out to analyse publications' evolution, the keywords' co-occurrence and the bibliographic coupling. Second, a qualitative analysis was performed based on a content analysis of the clusters. This allowed the proposition of a conceptual model that launches a proposal for reflection on the synergies of the three dimensions of triple bottom line with business strategy concepts. The results demonstrate that business organisations, through competitive social advantage, environmental decision-making and economic planning, can stimulate triple bottom line 's performance, contributing to the economic development of nations. This new look at triple bottom line benefits professionals and academics by better understanding the synergies between triple bottom line dimensions. And between these and the concepts of economic development and business strategy.

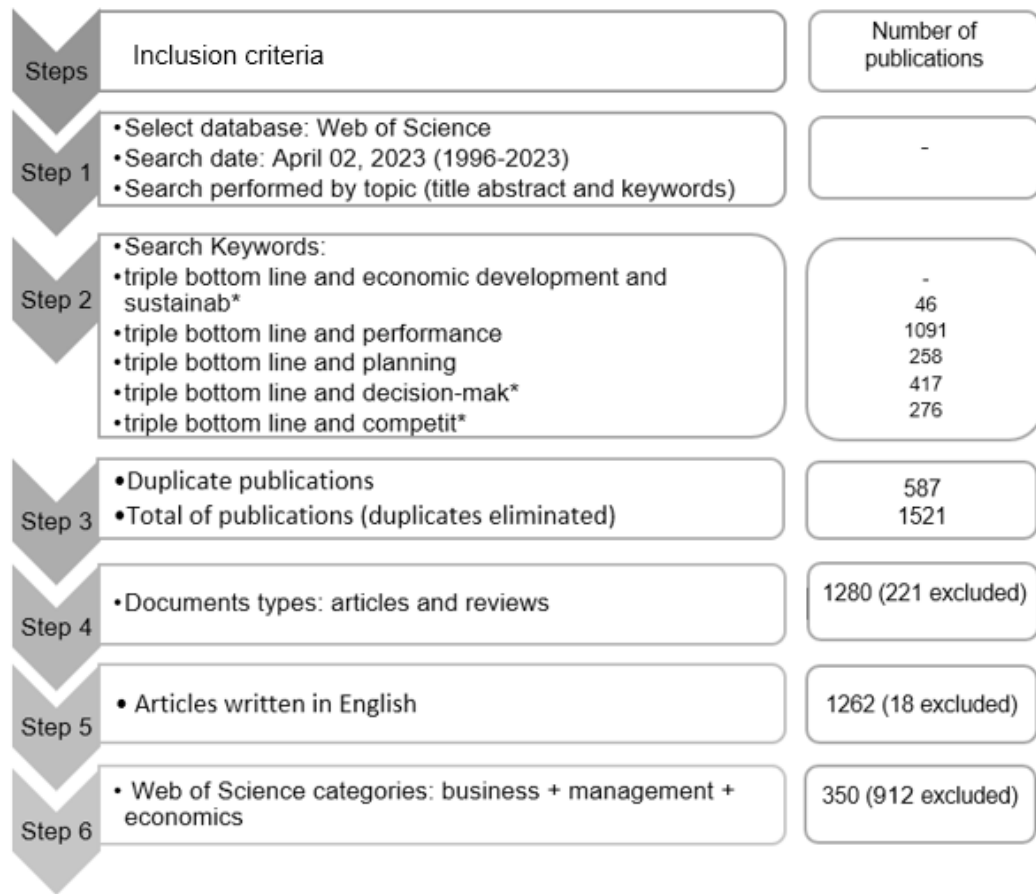
This work is structured as follows. After this first introductory section, the second section, materials and methods, is presented. Where the methodology adopted and the steps of sample collection used in the study are explained. This is followed by a third section, results, which includes a bibliometric analysis, a co-occurrence analysis and a cluster analysis. The fourth section, the discussion, presents the content analysis carried out for each cluster that contributed to the construction of the conceptual model. This model and its theoretical and practical implications are also presented in this section. The fifth and last section presents the conclusions, research limitations and future lines of investigation.

2.2 Materials and methods

This study is based on a bibliometric study. This technique was chosen because bibliometrics is an increasingly relevant field (Milojevic et al., 2011) and bibliometric analysis is generally robust to uncertainty in keyword choice (Zhi et al., 2015). Bibliometric methods enable investigators to support their discoveries on gathered bibliographic data and encapsulate a high potential for categories that are derived from published reviews to be quantitatively confirmed (Zupic & Čater, 2015).

Thus, six steps were taken. In the first step, we searched the Web of Science Core Collection to identify our sample and delimit the object of study. The choice of this database is because it is considered, when bibliometric explorations are conducted in the field of social sciences, a core source of information (Z. Liu et al., 2015) because its data are subject to a process of selection, organisation, and care (Franceschini et al., 2016). The extraction was performed on April 02, 2023. It is considered 1996 to 2023 because the triple bottom line concept emerged in 1996 (Elkington, 2006). In the second step, a search was carried out by topic (title, abstract, keywords). It considered the terms: "Triple bottom line" and Sustainab* and "Economic development"; or "Triple bottom line" and performance; or "Triple bottom line" and planning; or "Triple bottom line" and decision-mak*; or "Triple bottom line" and competit*. After removing duplicates, in the third step, only the articles and the reviews articles were considered in the fourth step. And in the fifth step, only articles written in English were considered. The sixth and final step of sample identification was choosing categories/research areas of Web of Science: business, management and economics, like Thirumaran et al. (2021). Thus, 350 articles were gathered for analysis (Figure 4).

Figure 4 - Steps involved in the methodology.



Source: Own elaboration

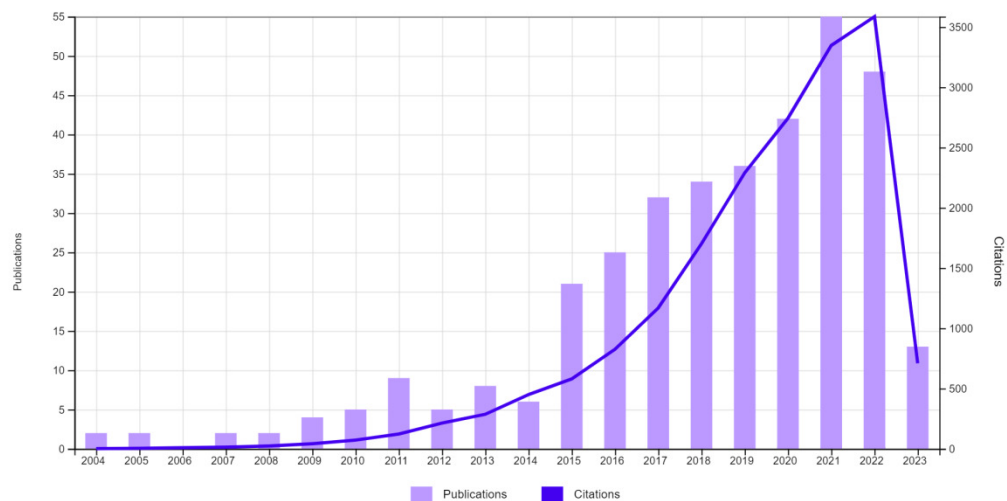
To conduct our analysis, VOSviewer, a tool for building and visualizing networks (Eck & Waltman, 2017), that allows for a detailed examination of bibliometric maps with easy interpretation (Eck & Waltman, 2010), was used. VOSviewer was used to perform the keywords co-occurrence analysis, which investigates the proximity and relevance of keywords by investigating the number of times they are used together in the sample of publications (Veloutsou & Ruiz, 2020). A bibliometric coupling map, which measures inter-article similarity between the two articles (R. L. Liu, 2017), estimates how two articles co-cite the same references (Kessler, 1963).

2.3 Results

2.3.1 Evolution of publications and most relevant publications and journals

Understanding the evolution of publications and citations is one of the principles of bibliometric analysis. Figure 5 shows the evolution of citations and publications. The 350 publications of the sample have 18,187 citations, representing an average of 52 citations per article.

Figure 5 - Evolution of publications.



Source: Own elaboration based on data available at <https://www.webofscience.com/>.

The first publications linking the triple bottom line to the concepts studied only appeared in 2004. From then until 2014, the evolution of its number was stable, with 2011 being the year with the highest number of publications, with nine. 2015 registered 21 publications, representing 6% of the total publications and annual growth of 250%. Since then, the annual number of publications has been increasing, reaching the highest point with 55 publications in 2021, 15.7% of the total publications. This happens after 41 publications were registered, 11.7% of the total, in 2020 and 36 publications in 2019, representing 10.3% of the total. In 2022 the number of publications was 48 and 3,586 citations were recorded. In 2023 the number of citations has already reached 710 and the publications are 13. In other words, the interest in academia has been growing gradually since 2015. Publications from 2019 to April 02, 2023, represent 69.7% of the total publications. The number of citations between 2004 and 2013 represents 4.3%,

with 785 citations. From 2014 onwards, the number of citations gradually increased, from 450 in 2014 to the maximum number of citations, 3,586 in 2022. It is verified that citations in 2022 correspond to 19.7% of the total citations and that 3,347 in 2021 corresponded to 18.4%. These facts translate the studied topic's interest, relevance and topicality.

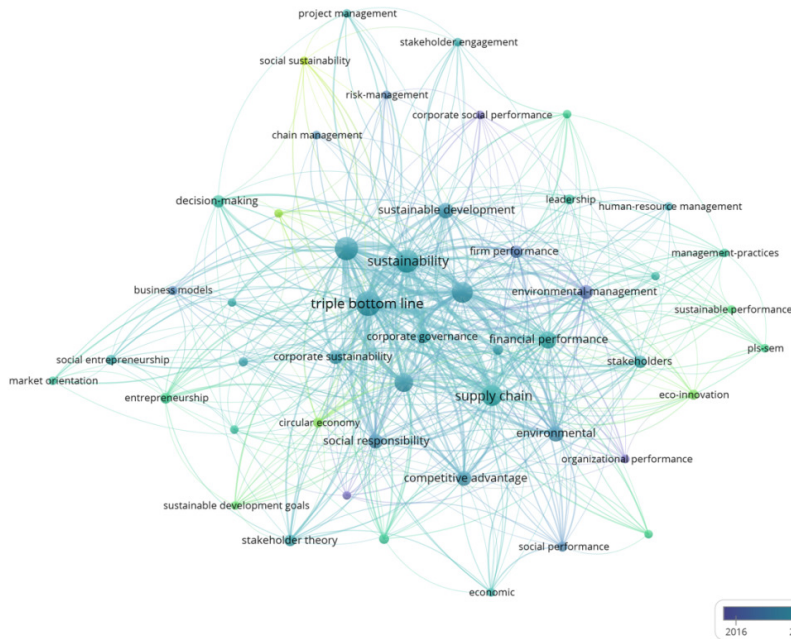
When we look into which journals publish the most on the theme under study, it becomes clear that the highlight goes to Business Strategy and the Environment, with 24 articles corresponding to 9.7% of the sample. Journal of Business Ethics has 13 publications, 3.7% of the sample. Supply Chain Management- An International Journal and Corporate Social Responsibility have eleven publications. The Corporate Social Responsibility and Environmental Management and the International Journal of Operations Production Management have ten publications each, corresponding to 3.2% of the sample. The remaining publications were in different journals, including the European Journal of Operational Research and the International Journal of Productivity and Performance Management.

If our focus concerns the publishers most interested in the topic, we address it in our study. In that case, Emerald stands out the most with 124 publications, representing 35.4% of the sample, followed by Elsevier with 55 publications, or 15.7% of the sample, and Wiley has 47 publications, which correspond to 13.4% of the sample. Taylor & Francis has 34 publications, 9.7%, and Sage and Springer Nature have 18 publications, representing each about 5% of the total of publications. There are other publishers with a small number of publications.

2.3.2 Co-occurrence analysis

Using the software VOSviewer version 1.6.17, we present the co-occurrence analysis of the keywords of the 350 publications under study (Figure 6). These have 1856 keywords present, and with the application of the criterion of at least five times for occurrence, 49 keywords remained for analysis. This allowed us to identify the annual publication trend through the shades that the program elects for the passing of the years.

Figure 6 - Co-occurrence analysis.



Source: Own elaboration based on data available at <https://www.webofscience.com/>.

In the analysis shown in Figure 6, it was verified that until 2015 there was no concentration of themes, so VOSviewer did not present results for that period. Around 2016, the studies focused on corporate sustainability, social performance, environmental management, economic performance, economic sustainability, social responsibility, social entrepreneurship, stakeholders and decision making. An example of this is the study by Ozanne et. al. (2016) that tries to explain the tensions involved in the search for triple bottom line. And that of Montalbon et al. (2016), which reflects on the interrelationship between the elements of sustainability and the decision-making that results from it. Or the one by Paul et al. (2016), which presents considerations on environmental concerns. In 2018, there was a change in the research trend, which gave more emphasis to concepts such as triple bottom line, stakeholder engagement, sustainability performance, corporate governance, supply chain, corporate social responsibility, sustainability, sustainable development, project management, economic, environmental and competitive advantage. This theme is evident in the article by N. Hussain, Rigoni, and Orij, (2018), which investigates the relationship between corporate governance and triple bottom line. And in Garcia-Torres et al. (2019) focus on the potential of industrial upgrading to improve triple bottom line's performance. As of 2020, we have identified as a trend in the lines of research the terms triple bottom line performance, sustainable entrepreneurship, financial performance, project sustainability management, environmental policy, institutional theory and strategic

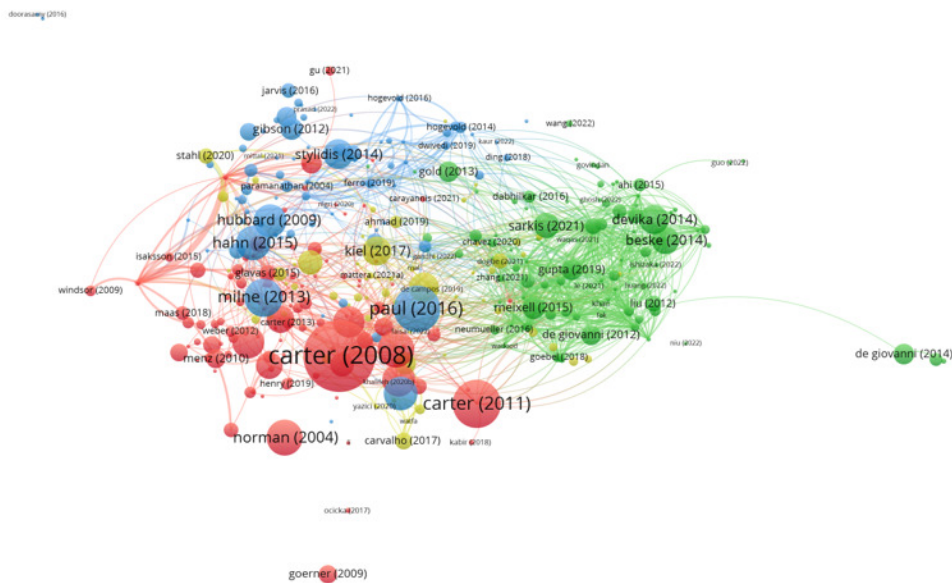
management. Gu et al. (2021) contributed to this trend by studying the relationship between entrepreneurship and the triple bottom line of sustainable development. Finally, the studies published until 2023 focus their research on concepts that relate to COVID-19, sustainable performance, stakeholder theory, circular economy, eco-innovation, Sustainable Development Goals and social sustainability. An example is the article by Camilleri et al. (2023) which discusses the links between triple bottom line and innovation.

2.3.3 Cluster analysis

We used VOSviewer version 1.6.17 to perform bibliographic coupling when performing our cluster analysis. This bibliometric method is especially suitable for examining the research front of a topic or research field (Zupic & Čater, 2015). Its mode of operation is vital for analysing relationships and gathering topics of scholarly articles (R. L. Liu, 2017). This technique is suitable for business scholars who study a broad spectrum of themes, with special attention to its most recent developments, providing the present representation of this field of investigation (Donthu et al., 2021).

Of the 350 articles in the sample, 348 were grouped by the program. Thus 2 were excluded from the analysis. Figure 7 shows the formation of four clusters collected by the VOSviewer; each cluster corresponds to a different colour.

Figure 7 - Bibliographic coupling analysis.



Source: Own elaboration.

The focus of our study being triple bottom line, economic development, and sustainability, we identified the clusters as follows: cluster 1 - red - competitiveness and social dimension of triple bottom line, with 108 articles; cluster 2 - green - decision-making and environmental dimension of triple bottom line, with 92 articles; cluster 3 - yellow - planning and economic dimension of triple bottom line, with 71 articles; and cluster 4 - blue – triple bottom line performance, with 77 articles.

2.4 Discussion

2.4.1 Cluster discussion and conceptual model

2.4.1.1 Cluster 1 – Competitiveness and social dimension of triple bottom line

Sustainable practices that satisfy consumers and improve the competitive advantage of companies can promote economic growth (Gu & Wang, 2022). Companies' competitive positioning is determined by their response to the endless uncertainties of the business world (Baral & Pokharel, 2017). When leaders have a responsible leadership attitude, they can guide organisations towards sustainability (Amir et al., 2022). People-first strategies can be an important source of competitive differentiation (Palmer et al., 2022). Companies that fulfil the social contract are seen as credible and altruistic, allowing them to gain society's support and grow positively (Mattera & Ruiz-Morales, 2021). Social innovation ideas enhance the company's competitive advantages and benefit from the company's interaction with external stakeholders (Camilleri et al., 2023). Thus, companies win from stakeholders and contribute to social well-being simultaneously (Mattera & Ruiz-Morales, 2021). A competitive advantage can be gained when companies are socially responsible (Lassala et al., 2021). Corporate social responsibility has numerous definitions (I. Freeman & Hasnaoui, 2011; Lassala et al., 2021). For many researchers, a high standard of corporate social responsibility is synonymous with the greater long-term company development and a source of competitiveness (Menz, 2010). The social activities organisations participate in allow them to create internal projects, or external partnerships, to achieve companies' social objectives (McMullen & Warnick, 2016). And it's a fundamental piece in managing the relationship between companies and consumers (Gonzalez-Rodriguez et al., 2015). These considerations led us to formulate the following proposition for conceptual model development.

P1: The social dimension of companies is a way to leverage business competitiveness.

2.4.1.2 Cluster 2 – Decision-making and environmental dimension of triple bottom line

Companies' environmental awareness influences strategic decision-making (S. A. R. Khan et al., 2023). Supply chain management is at the front line of business sustainability (Meixell & Luoma, 2015). Its planning requires a choice between resilience and sustainability (J. Singh et al., 2023). Environmentally conscious practices such as green purchasing contribute to the efficiency and strength of complex decision-making processes (S. A. R. Khan et al., 2023). Positive environmental performance improves economic performance even when no support is required, either from government or non-governmental development organisations (Layaoen et al., 2023). Stakeholders increasingly demand the adoption of triple bottom line (Meixell & Luoma, 2015). And the literature in this area is quite extensive (Arslan, 2020; Beske & Seuring, 2014). Companies face numerous sustainability issues and must make critical decisions to address environmental concerns (Ishizaka et al., 2022). Risky decision-making is facilitated by innovative capability (Alcalde-Calonge et al., 2022). Environmentally conscious companies create external environmental initiatives that capture the interaction effects of the entire supply chain, making joint decisions to reduce negative environmental impact (De Giovanni, 2012). The integration and coordination of various stakeholders require understanding the needs, operations and data that support decision-making (Gupta et al., 2019). However, joining companies with stakeholders who want to discuss key areas of intervention allows them to opt for more regenerative and restorative commercial operations (Gupta et al., 2019). Thus, in the sustainable management of the supply chain, managers must make the environmental effectiveness of the players their decision-making basis (De Giovanni & Zaccour, 2014). Tools such as joint decision-making are needed in processes with an assigned environmental goal (M. H. Zhang et al., 2021). Because for the environmental dimension there is a collaboration with environmental groups and other audit and certification bodies (Gold et al., 2013). And the scope of decision-making can switch between objective and subjective approaches (Kamardi et al., 2023). Failure to consider environmental indicators when making decisions results in an increase in the carbon footprint (Guo et al., 2023). This leads us to contribute to the conceptual model with the following proposition.

P2: Decision-making and supply chain are at the forefront of environmental sustainability

2.4.1.3 Cluster 3 – Planning and economic dimension of triple bottom line

The increasingly urgent nature conservation has made sustainable development (with the three dimensions with which it is analysed in the light of triple bottom line) gain more and more strength in academia and companies (Qi & Yang, 2023). The vision of the economic dimension of triple bottom line pressures companies to redefine their business purpose for Planet and People (Bonfanti et al., 2022). But the basis of business motivations for developing sustainable projects is not solidarity (Martens & Carvalho, 2017). It is the economic performance that drives sustainable processes in companies (Agrawal & Singh, 2021; Martens & Carvalho, 2017). Because when companies' business strategy involves their performance, in the light of triple bottom line, stakeholders, shareholders, and the companies themselves benefit (Dao et al., 2011). Understanding and discussing the economic benefits of business activity is vital for planning and implementing activities whose environmental impact is fraught with uncertainty (Fridriksson et al., 2020). But different players envision different outcomes and advocate different strategies (Fridriksson et al., 2020). This makes planning even more difficult (Khalifeh, Farrell, & Al-edenat, 2020). This reflection served as the basis for constructing the conceptual model by providing the following proposition.

P3: Planning is one of the most difficult battles toward economic sustainability.

2.4.1.4 Cluster 4 – Triple bottom line Performance

The sustainability management challenges relate to adapting measurement tools while considering economic, environmental and social resources (Mengistu & Panizzolo, 2022; Milne & Gray, 2013). Triple bottom line is the predominant business reporting framework (Milne & Gray, 2013) and it approaches sustainability holistically under three dimensions (Kaur et al., 2022). The scope of the analytical perspectives, which accompany and support the triple bottom line, can range from a small individual company to the entire national economy (Foran et al., 2005). Triple bottom line 's performance is vital for Sustainable Enterprise Excellence, an integrated management perspective that seeks business excellence (Edgeman & Eskildsen, 2014). It is also essential for the sustainability movement, and it is necessary to not prioritize the domains of people and the planet while neglecting profit (Edgeman & Eskildsen, 2014). The growing pressure for corporate reporting, which includes ecological and social results, has increasingly valued performance metrics and assessments (Perello-Marin et al., 2022). One of the difficulties of measuring sustainability is that the measured object constantly evolves and changes (Hubbard, 2009). Triple bottom line proposes

that organisations must engage environmental and social concerns with economic performance when addressing sustainability. The triple bottom line approaches sustainability holistically under three dimensions (Kaur et al., 2022). Following this reasoning, we made another proposition contributing to the conceptual model.

P4: Triple bottom line performance is a holistic measure

2.4.1.5 Future lines of research by cluster

The conclusions drawn from the discussion of clusters lead us to consider that future lines of investigation should analyse whether the tools to support the implementation of triple bottom line leverage the performance of companies, whether they facilitate decision-making and whether they act as simplifying the process of planning. In addition, academia increasingly emphasizes triple bottom line, and often, triple bottom line and sustainability are used interchangeably (Meixell & Luoma, 2015; Montabon et al., 2016). Thus, the continuous study of the triple bottom line theory is important, allowing new reflections on its functioning to be considered. And, knowing that the sustainability reports that it implies can represent a smokescreen of the impact caused, socially and environmentally, by companies (Norman & MacDonald, 2004). And that, triple bottom line, can also be an institutional and organizational barrier to ecological literacy, causing a greater level of unsustainability (Milne & Gray, 2013). It is vital to investigate the possibility that the application of triple bottom line is itself a driver of unsustainability and laundering of results, intentionally or not. In addition to the lines of research we have identified, we also present future lines of research by authors from each cluster (Table 3).

Table 3 - Future Lines of Research.

Cluster	Future Lines of Research	Authors
1	<p>Exploration of the influence that sustainable entrepreneurship has on economic growth, in the various political contexts.</p> <p>Develop the conceptual model that analyses how circular economy systems and their resiliency build on the combination of business, society and environmental system value.</p> <p>Analysis of approaches to open innovation that aim to co-create value for society and companies.</p> <p>Focus on subjective measures of performance.</p>	<p>Gu & Wang, 2022</p> <p>Howard et al., 2022</p> <p>Camilleri et al., 2023</p> <p>Z. Ullah, 2021</p>
2	<p>Study the mediating/moderator effect of sustainability in developing new products.</p> <p>Consider the dual moderating role of Realized Absorption Capacity and Green Brand Positioning in the connection among Innovation Capacity and New Product Success.</p> <p>Examination of the interrelationships of all supply chain entities.</p> <p>Include natural scientists, social scientists, civil society, government and industry in the operations and supply chain study. Analysis of sustainable strategies that help companies survive after COVID-19.</p>	<p>Ahmadi-Gh & Bello-Pintado, 2021</p> <p>Dogbe et al., 2021</p> <p>Kannan, 2021</p> <p>Sarkis, 2021</p>
3	<p>Consult stakeholders and experts to consider other indicators of sustainability.</p> <p>Inclusion of more performance aspects in the reverse supply chain study.</p> <p>Consideration of other performance parameters related to the circular economy.</p> <p>Consideration of multiple stakeholders in measuring project success.</p> <p>Increase research into incorporating sustainability into software projects.</p>	<p>Gandhi et al., 2022</p> <p>Agrawal & Singh, 2021</p> <p>Khalifeh, Farrell, & Al-edenat, 2020</p> <p>Khalifeh, Farrell, Alrousan, et al., 2020</p>
4	<p>Test firms' business sustainability with the developed framework</p> <p>Discussion on the redefinition of economic sustainability, focus on stakeholders' perceptions and perceptions as drivers for sustainable success.</p> <p>Strengthen the evidence between the Global Reporting Initiative and the Sustainable Development Goals-</p>	<p>T. R. Lee et al., 2022</p> <p>Hallencreutz et al., 2020</p> <p>Perello-Marin et al., 2022</p>

Source: Own elaboration.

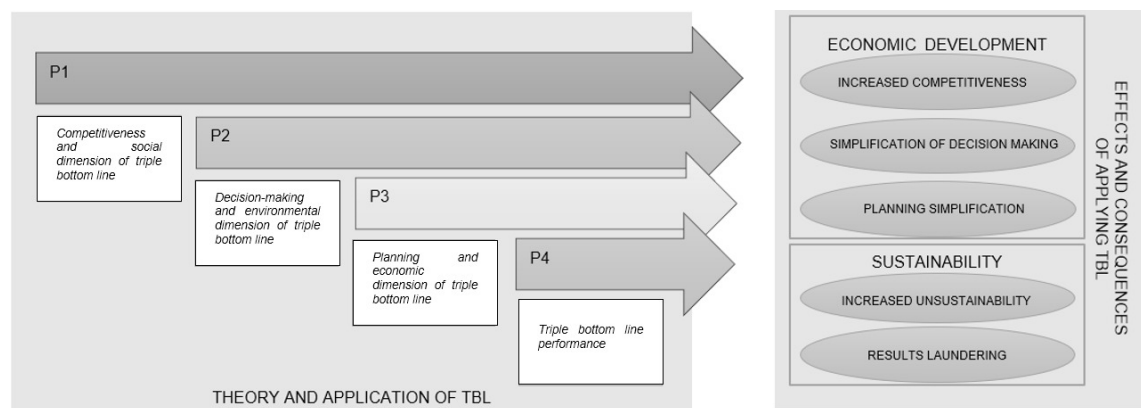
The authors of cluster 1 understand that there is a need to explore the effect of sustainable entrepreneurship, the relationships of circular economy systems, analysis of approaches to open innovation that aim to co-create value for society and companies and performance measures. In cluster 2, it is suggested to study the mediator/moderator effect of sustainability, the consideration of the dual moderating

role of Realized Absorption Capacity and Green Brand Positioning, the examination of the interrelationships of all entities in the supply chain and the union with others scientists, civil society, government and industry in the study of operations and supply chain. In turn, the authors of cluster 3 consult stakeholders and experts to consider other sustainability indicators and defend the study of more aspects of performance, the success of the projects and the study of the incorporation of sustainability in software projects. Finally, the authors of cluster 4 suggest testing firms' business sustainability with the framework they developed, the redefinition of economic sustainability, the focus on stakeholder perceptions and strengthen the evidence between the Global Reporting Initiative and the Sustainable Development Goals.

2.4.1.6 Building the conceptual model

The thinking that influences the model's design, presented in Figure 8, assumes that the triple bottom line influences the economic development and that the activities it represents interact with the sustainability outcomes. The study of this scientific field has been carried out following four perspectives, the social, the environmental, the economic and the holistic.

Figure 8 - Theoretical-conceptual model.



Source: Own elaboration.

Profit is not the goal, it's a way to reach an objective, and this has implications for the design of company performance measures, which can go beyond monetary terms (Isaksson et al., 2015). There is an ideological and theoretical divide between those who advocate profit maximisation and those who support the broader triple bottom line performance (Windsor, 2009). But there is a direct link between companies improving

their sustainability performance and having talented managers who achieve greater returns on profit (J. Lu et al., 2022). And only if companies transition from business as usual to more sustainable ones can they achieve sustainability (Ishizaka et al., 2022). The best way to help business decision-makers is to provide the criteria for the three dimensions of the triple bottom line, as this way, they can analyse the trade-offs and know the cost-benefits of each one (Guo et al., 2023). We must always keep in mind that one of the great challenges in assessing the sustainable performance of companies is related to the distortion found in some disclosures.

The social perspective is part of the social dimension of triple bottom line and bears in mind that companies can benefit from adopting socially responsible strategies (Cronin et al., 2011). Thus, it is expected that companies use these strategies as a way to leverage their competitiveness. However, for the most part, they are a voluntary act of companies, sometimes seen as a cost (Z. Ullah, 2021). Interest in this topic has not only increased but also stimulated the adoption of triple bottom line (Martinez-Ferrero et al., 2015; Menz, 2010). And, despite the high number of scientific studies that analyse the relationship between corporate social responsibility and the financial performance of companies (Lassala et al., 2021), indicators, particularly social ones, are still being developed (Longoni & Cagliano, 2018). Corporate social responsibility creates and leverages a relationship of loyalty with consumers that can result in competitive differentiation in the market, creating value and profit (Gonzalez-Rodriguez et al., 2015).

When we start from the environmental point of view of triple bottom line, we know that it is up to supply chain managers to undertake the decision-making process, which launches the realization of business strategies that can negatively impact the environment. Companies' environmental strategies and practices, directly and indirectly, affect their economic indicators (Yun et al., 2019). Sustainable measures also affect consumer decisions and stimulate organizational results (Kitsis & Chen, 2020). But, often, the economic objectives that have to be achieved in the short term collide with social and environmental criteria (Goebel et al., 2018). Still, decision-making must consider that internal environmental initiatives improve economic outcomes (De Giovanni, 2012). And those who work in problem-solving can use decision theory as a support tool. (Kannan, 2021). Big data analytics contributes to decision-making (Gupta et al., 2019; Sarkis, 2021). The insights it generates reduce uncertainty and create predictions for company decision-making (Gupta et al., 2019). Profit and sustainability can be gained if companies continually invest in eco-friendly and cost-effective initiatives (Fok et al., 2023).

Triple bottom line's economic perspective is also linked to major management challenges. Effective planning remains a difficult task (Yazici, 2020). But the adoption of triple bottom line, when strategically considered in the design and planning of services, provides an optimized foundation for the business (Stylos & Vassiliadis, 2015). This is the case when triple bottom line guides the posture of human resources management (Jabbour & Santos, 2008). Decisions made by human resources management impact not only people but also profit (Dao et al., 2011). Recognizing that the area of activity and the impact of human resources management has its spectrum extended to society and the environment requires a change in its approach (Stahl et al., 2020). Sustainability emerges as a new school of thought in project management (Khalifeh, Farrell, & Al-edenat, 2020). And understanding the results of triple bottom line helps managers in planning their activities (Weidner et al., 2021).

Finally, there is the optics that simultaneously considers the three dimensions. Therefore, a holistic treatment is needed that satisfies all stakeholders through an operational performance of excellence, which provides economic prosperity, environmental protection and social integrity (Asif et al., 2011). As are also necessary systems for collecting and interpreting data within national statistical agencies so that the complexity of the triple bottom line does not create an impasse by overloading managers seeking to carry out reforms (Foran et al., 2005). Adopting enterprise systems will benefit the three dimensions of triple bottom line and the company's performance, motivating companies to adopt sustainable practices in letter and spirit (Ahmad & Mehmood, 2015). But the performance of companies will depend on their planning and positioning in society and the market (Rodriguez et al., 2018).

Most academics and practitioners emphasise that management practices, models and principles contribute to achieving sustainable development (Allur et al., 2018). The debate on the difficulties in measuring the sustainable performance of companies is necessary and has been ongoing. In recent decades, many initiatives related to measuring the sustainable performance of companies have been developed (Sartori et al., 2017). Examples of this are: Global Reporting Initiative; Life Cycle Assessment and Environmental Management Systems.

Global Reporting Initiative establishes guidelines for disclosing performance in non-financial reports. (Helfaya & Morris, 2023). Its standards support disclosing committees responsible for decisions on economic, environmental and social topics (Baraibar-Diez & Odriozola, 2019). The shortcomings and methodological difficulties of voluntary reports have not prevented the growing adoption of the Global Reporting Initiative guidelines. (Baraibar-Diez & Odriozola, 2019). And it is expected that more quality information will be shared by companies that follow Global Reporting Initiative

standards (Baraibar-Diez & Odriozola, 2019). Life Cycle Assessment assesses the environmental costs of a given product by quantifying the materials and energy consumed and the emissions and waste released throughout its life cycle (Pauer et al., 2019). It has been demonstrated to be an effective tool (Praticò et al., 2020) that supports decision-making (Pauer et al., 2019). To avoid load transfers and to make it possible to assess all the impacts, the analysis must be carried out on the entire life cycle (Pauer et al., 2019). The adoption of Environmental Management Systems is increasing in companies de (de Junguitu & Allur, 2019; Schebek et al., 2021; Voinea et al., 2020). The reference models that have been most implemented are the Eco-Management and Audit Scheme regulation and the ISO 14001 (Schebek et al., 2021). Environmental Management Systems integrates information on the current state of environmental issues and policy goals for them, and is especially suited for assessing environmental aspects (Schebek et al., 2021). It does not have a direct effect but its tools to plan, measure, monitor and make decisions indirectly affect environmental performance (Voinea et al., 2020).

2.4.2 Theoretical implications

The present study contributed to the deepening of knowledge about triple bottom line and brings new contributions to theories about economic development, reinforcing the need for them to be revised with the addition of the environmental dimension. Furthermore, it demonstrates that business strategies cannot be based solely on the economic and social dimensions, but must consider the dimension of environmental sustainability, reinforcing the important role they can play in economic development.

2.4.3 Practical implications

From a more macro perspective, policy makers have to consider environmental, social and economic measures in their action and decision plans, not only because they have goals (especially environmental ones) to meet, but because this is the future path to achieve the economic development of nations. Environmental sustainability cannot continue to be considered a "file" apart from economic and social intentions. There has to be an increasingly articulated and consistent action plan, in order to absorb all the benefits that triple bottom line can induce to economic development. In addition, despite the extensive literature on the subject, it is urgent to review classic economic development measures, including environmental sustainability.

At the level of business organizations, managers can use the theoretical-conceptual model proposed to support their strategic and operational options. It will allow the application of triple bottom line in a holistic way in the business strategy, allowing to achieve a competitive advantage through the adoption of socially responsible strategies, environmental decision-making and economic planning. Consequently, it will increase competitiveness, simplify decision-making and planning and reduce unsustainability, improving business competitiveness.

At the academic level, there is a need to review some curricular units taught in higher education institutions, for example, strategic management, starting to apply the three-dimensional concept of triple bottom line with the pillar strategy of business organizations and the path to economic development. Triple bottom line can be a barrier to ecological literacy (Milne and Gray, 2013).

2.5 Conclusion

The growing concern with sustainability as a whole led to the construction of the triple bottom line, which, with its three dimensions, is an essential tool for the search of nations and business organizations for profits that respect people and the planet, and consequently, to boost the economic development. The sustainability challenges and goals imposed across all nations are still seen by nations and business organizations as legal provisions that they have to comply with and not as sources of competitive advantage. Thus, this bibliometric study aimed to analyse the relationship between the concepts triple bottom line and economic development, adding concepts of business strategy such as competitiveness, decision making and planning. It has been demonstrated that triple bottom line can influence economic development, with business organizations playing an essential role through the formulation of strategies based on three pillars: social competitiveness, environmental decision-making and economic planning. In this way, the business strategy based on the three dimensions proposed by the triple bottom line can promote economic development, improving the performance of nations and business organizations in terms of economic, social and environmental sustainability.

Our study presents certain limitations. The bibliometric literature analysis relies only on articles from the Web of Science. Even though this database is classified as one of the most comprehensive databases of peer-reviewed publications, it is not the only one. And the filtering process and the use of software may have omitted literature. In addition, other keywords could have been considered, and since there is a continuity

of publication of articles, our study only refers to the period studied (1996 to 04.02.2023). At the end of our analysis, we believe that future lines of research should consider other databases, such as Scopus or EBSCO. It will be very useful to continue the study of the model, namely the strengthening of the analysis of the effects and consequences of applying the triple bottom line theory to economic development and sustainability, which have been identified. Corporate sustainability implies long-term reflection and planning. Understanding whether companies with a more fragile organisational structure can respond to sustainability challenges is important. And if they are forced to prioritise one of the three dimensions of triple bottom line to the detriment of others. On the other hand, do companies in a better organisational position have a greater moral obligation to participate in constructing a better future for all?

CHAPTER 3- THE KEY TO SUSTAINABLE ECONOMIC DEVELOPMENT: A TRIPLE BOTTOM LINE APPROACH

Abstract:

Concerns about improving social, environmental, and economic living standards are the basis of the triple bottom line link to economic development. Aware of the importance of studying their relationship, this article analysed the influence of triple bottom line on economic development. A quantitative methodology was used. The sample comprised a panel of data from 2006 to 2019 for Organisation for Economic Co-operation and Development countries. Five multiple linear regression models were estimated by the generalised method of moments. The results of this study revealed that the social dimension of triple bottom line boosts economic development, the environmental dimension of triple bottom line slows down economic development, and the economic dimension of triple bottom line contains conflicting synergies in economic development. The Human Development Index should now include indicators of environmental wellbeing. Governments should adopt policies to improve social wellbeing to boost economic development, work to coordinate the objectives of environmental protection and economic development, and combat vulnerabilities arising from public debt. As one of the first studies to assess the influence of triple bottom line on economic development at the country level, the present findings contribute to the reflection about the influence of triple bottom line on a country's economic development and strengthens the discussion around the influence of different dimensions of triple bottom line.

Keywords: Triple bottom line; economic development; human development index; sustainable society index; human wellbeing; environmental wellbeing; economic wellbeing

3.1 Introduction

The global COVID-19 pandemic, in addition to political and economic uncertainty, has brought social and economic costs that will be felt in the coming years (Cooke et al., 2022). It also brought fluctuation in the prices of commodities (W. Liu & Chen, 2022). Price instability, limited availability of natural resources, and the pandemic have caused many countries to face an energy crisis (Chofreh et al., 2021). This has made it even more evident that the development of sustainable initiatives is vital for sustainable economic development (Polcyn et al., 2022). Thus, it is extremely important to understand the role that sustainability plays in economic development.

This study assumes that sustainability must be perceived according to the triple bottom line construct. Triple bottom line, outlined by Elkington in 1996, assumes that value creation results from three dimensions, social, environmental, and economic, which must be accounted for (Elkington, 2006; Q. Farooq et al., 2021; Solaimani & Sedighi, 2020). It has at its core the support and management of activities that privilege development (Ranjbari et al., 2021). It has gained traction at all levels (Lederwasch & Mukheibir, 2013). Economic development is created by the process of creative destruction (Schumpeter, 1934) and translates into an organic system of successive qualitative changes (Schumpeter, 1947). It is responsible for sustainable development, at country level, in the long term (Porter, 2000). It is also at the country level that there is an obligation of harmony in the management of resources, be they social, environmental, or economic (Ahmad et al., 2018; Manzhynski et al., 2015). These are concepts that share particularities in their very nature. With the aim of improving understanding and effective action in relation to sustainable development, the United Nations announced the 2030 Agenda of Sustainable Development Goals (Tseng et al., 2020). The integrative nature of these objectives revealed the need to study the relationship between the adopted actions and the results obtained (Collste et al., 2017). Therefore, it is essential to monitor and evaluate the sustainable development of countries (Ahmad et al., 2018). Furthermore, the development of triple bottom line has highlighted the need for studies that approach it in a more holistic way (Hammer & Pivo, 2017; Isil & Hernke, 2017; Solaimani & Sedighi, 2020; Walker et al., 2020). However, despite recognising the importance of triple bottom line in economic development, it has been given little attention in this scientific field (Hammer & Pivo, 2017).

To fill this gap, this study analysed the influence of triple bottom line on economic development, in the timeframe from 2006 to 2019, in the 38 countries of the Organisation for Economic Co-operation and Development. The research question of

this study is, therefore, what is the relationship between the sustainable actions adopted and the outcomes achieved?

A quantitative methodology was used. After the statistical analysis of the variables, the hypotheses were tested through the estimation of five multiple linear regressions, using the generalised method of moments. No evidence was found of any previous study that considered an analysis encompassing the influence of triple bottom line, specifically involving the integration of their social, environmental, and economic dimensions, as well as the categories that constitute them, on economic development. Although there have been some studies on the link between triple bottom line and economic development, there is still no study ascertaining the influence of triple bottom line on economic development in Organisation for Economic Co-operation and Development countries. In fact, when focusing on articles that consider triple bottom line and economic development at the country level, only a cross-country comparison (Ahmad et al., 2018) and an assessment of the sustainable performance of each country (Manzhynski et al., 2015) were found. Extant research has made it possible to adopt a research model that allows a new understanding of the actions that influence economic development. This study adds new perspectives to previous discussions. It identifies the social dimension of triple bottom line as a driver of economic development, the environmental dimension of triple bottom line as an element that slows down economic development, and the economic dimension of triple bottom line as having conflicting synergies in economic development.

The structure of this study is as follows: after this introduction, where the general objective is presented, there follows a literature review that encapsulates the hypothesis development. This is followed by a description of the methodology, data, and variables. Then, the results obtained are presented and discussed, after which the conclusions, limitations of the study, and future lines of research are presented.

3.2 Literature review and hypotheses development

3.2.1 Economic development

For Schumpeter (1934), the process of creative destruction, the result of disruptive innovations, is responsible for the creation of economic development. It is an organic process represented by a qualitative change in constant evolution (Schumpeter, 1947). Despite the wide acceptance of the term economic development, there is intense discussion about its definition (Y. S. Lee, 2020) and its objectives (Montenegro, 2021). According to Lele (1991), economic development can be seen as

a method that seeks change and its definitions relate to both the targets of that procedure and the expedients that seek to achieve those targets. For Y.S. Lee (2020), economic development is about the process of gradual mutation of an economy. Long-term theories of economic development have the agglomeration of human capital and population growth as the central forces on which it is based (M. Silva & Klasen, 2021). For the endogenous growth theory, economic development has its centre in the productive capacity and the application of knowledge, by large firms, with the possibility of investing in human capital and research (Iftikhar et al., 2021).

The vision of Seers (1969) should also be mentioned, he sees development as the elimination or reduction of inequality, unemployment, and poverty. According to Owens (1987), development happens when there is a development of people and not a development of things. Daly (1990) started from the dictionary meaning of development, expanding or realising potentialities with a view to an improvement of the condition, describing the development as a qualitative improvement or an unveiling of potentialities.

Economic development's mission relates to the long-term achievement of sustainable development in the countries' life model (Porter, 2000). Economic development has in the financial sector one of its drivers (Habib & Afzal, 2019). It is a system that integrates resources, leads to urbanisation, and carries with it consequences for public health (Fan et al., 2022). It drives the process of industrialisation (Usman & Balsalobre-lorente, 2022) and, in several studies, it has been suggested that it is not always on a sustainable path (Umurzakov et al., 2022). It is supported by micro- enterprises (Contreras, 2022), is impacted by cultural characteristics (Tabellini, 2010), and is stimulated by financial inclusion (F. Liu & Walheer, 2022). Furthermore, the way a community understands and masters production techniques, especially in relation to the most relevant markets, can be perceived as economic development (Gala et al., 2018).

There is a long-standing concern among economists about the different factors that can impact the direction of a country's economic development (Bonneau et al., 2022). For Bonneau et al. (2022), when studying the differences between economic development and economic growth, economic development was usually referred to as a change in the economy that aids economic growth or qualitatively improves the social conjecture, which results from economic activity, whereas economic growth was mentioned as a change in the size of the economy. Not infrequently, economic progress is gored by the lack of action and agreement about the measures required (Porter, 2000).

The thinking that economic development policies endanger environmental sustainability began in the 20th century and led to the adoption by the United Nations of the concept of sustainable development (Rodríguez-Antón et al., 2022). This concept has two cores: meeting the needs of society, particularly the poorest, and the difficulties posed to the environment by society's behaviour and technological progress (Ferro et al., 2019). No definition of development gathers the consensus of all people since development is intimately linked to human wellbeing, and this is a concept that includes multiple dimensions subject to undeniable trade-offs (de Janvry & Sadoulet, 2016). Thus, the ideological choice of this study must be clarified, and it is related to the notion of development adopted by the United Nations. In other words, economic development brings together the concern with increasing income to meet basic needs, eradicating poverty, and preserving the environment. It should be considered to constitute three dimensions: the economic, the social, and the environmental.

3.2.1.1 Human Development Index

Several ways of measuring the level of economic development have been elected such as through gross domestic product per capita (X. Yang et al., 2019), using a ratio of a country's gross domestic product (China) to global gross domestic product (Qian et al., 2022), and considering the Genuine Progress Indicator or the Index of Sustainable Economic Welfare (Kubiszewski et al., 2013). Among the composite indicators of socioeconomic development, the Human Development Index is the most commonly employed (Biggeri & Mauro, 2018).

The United Nations Development Programme developed the Human Development Index, a development measurement tool that considers economic and social advances (UNDP, 1990). Mahbub ul Haq was the Pakistani economist who led the team that invented it, and presented it in 1990, in the first Human Development Report (Klugman et al., 2011). Born out of the desire that policy focus should be on people and not on national economic accounting, the core of countries' development, the Human Development Index aims to estimate the progress of nations, considering not only economic expansion but also important social outcomes (Hickel, 2020). Thanks to its multidimensional nature, it measures the development of nations along several lines (Medda et al., 2022). It is calculated as the geometric mean of standardised indicators representing each of the key dimensions of human development: a healthy and long life, access to knowledge, and an adequate standard of living (Hickel, 2020; Medda et al., 2022). Table 4 details the dimensions, indicators, and sources of Human Development Index data, adapted from UNDP (2020).

Table 4 - Human Development Index dimensions, indicators and data sources.

Human Development Index						
Dimension index	Life expectancy index	Education index				Gross National Income index
Indicators	Life expectancy at birth	Expected years of schooling	Mean years of schooling	Mean years of schooling	Mean years of schooling	Gross National Income per capita (PPP \$)
Dimensions	Long and healthy life	Knowledge				A decent standard of living
Data sources	United Nations Department of Economic and Social Affairs	United Nations Educational, Scientific and Cultural Organization Institute for Statistics; ICF Macro Demographic and Health Surveys; United Nations Children's Fund Multiple Indicator Cluster Surveys; Organisation for Economic Co-operation and Development.	United Nations and Scientific Cultural Organization for Macro Demographic and Health Surveys; UNICEF Multiple Indicator Cluster Surveys; Organisation for Economic Co-operation and Development.	United Nations Educational, Scientific and Cultural Organization Institute for Statistics; Barro and Lee; ICF Macro Demographic and Health Surveys; UNICEF Multiple Indicator Cluster Surveys; Organisation for Economic Co-operation and Development.	United Nations and Scientific Cultural Organization Institute for Statistics; Barro and Lee; ICF Macro Demographic and Health Surveys; UNICEF Multiple Indicator Cluster Surveys; Organisation for Economic Co-operation and Development.	World Bank; International Monetary Fund; United Nations Statistics Division.

Source: own preparation, based on UNDP (2020).

Togtokh (2011) believed in the merits of Human Development Index when it comes to development and quality of life. However, he also reminded us that there is a presumption of the limitlessness of natural resources and that not enough attention is paid to the changes that are caused to the planet by development. However, the Human Development Index is an inclusive metric of the basic life factors seen as an explanatory indicator of the economic development (Banday & Kocoglu, 2022; Saba & Ngepah, 2022).

It can translate the level of quality of life (Ivanova & Masarova, 2018; Silveira et al., 2021) and reflect it better than gross domestic product (Bojanic & Collins, 2021). In addition to this, it has been instrumental in spreading the discussion of economic development beyond the purely monetary scope (Rende & Donduran, 2013).

3.2.2 Triple bottom line

The concept of triple bottom line, designed by Elkington, emerged in 1996; it sees companies or organisations as value creators in multiple dimensions that must be accounted for (Elkington, 2006). It has, at its core, supported and operationalised the implementation of sustainable development (Ranjbari et al., 2021). Triple bottom line is also presented as the three Ps: profit, planet, and people (He et al., 2019). It consists of three dimensions: economic, environmental, and social (J. G. Wu, 2013). That is, to the traditional economic results, the environmental and social dimensions have been added to calculate the business performance in its sustainable interpretation (Hourneaux Jr et al., 2018). It is the fruit of the growing awareness of the problematic that involves sustainability and to which the World Commission on Environment and Development of the United Nations Organisation contributed substantially when it published in 1987 the report “Our Common Future”, known as the Brundtland report (Holden et al., 2014). The triple bottom line was legitimised by incorporating into its measures the concerns with the future of people (inside and outside the organisations) and the planet (Kleindorfer et al., 2005). It suggests that companies’ involvement in socially and environmentally responsible conduct is necessary and can result in financial gains (Gimenez et al., 2012). Financial gains can also result from activities at the intersection of companies’ economic, environmental, and social performance, synonymous with competitive advantage and long-term economic returns (Carter & Rogers, 2008). Being usually well received, the triple bottom line framework is useful for finding answers for organisations seeking a path towards sustainability (Yun et al., 2019).

To measure triple bottom line, the Sustainable Society Index was used. Since 2006, the Sustainable Society Foundation of the Netherlands has developed the Sustainable Society Index (Gonzalez-Cabezas et al., 2019). Since 2018, the responsibility for editing the Sustainable Society Index has been passed on to the Technische Hochschule Köln (THK, 2022). It is a composite index covering the three main domains of sustainability (Van de Kerk & Manuel, 2008). Its component indicators are 21, assessed on a scale of 0–10 and a biannual basis (J. Phillips, 2021). They measure the distance to full sustainability for each indicator representing the three categories of environmental/ecological aspects, quality of life, and resource depletion (Kovacs et al., 2020). The differential weighting of the indicators has no scientific basis; thus, there is equality in their consideration when aggregating them across the three dimensions (Larson, 2021). Following the advice of the Joint Research Centre of the European Commission, the Sustainable Society Index is not a single overall index as

the three dimensions are not aggregated (Larson, 2021). In a simple and transparent way, it integrates the most important aspects of sustainability (J. Tang et al., 2019). Compared with other indices, the Sustainable Society Index considers a larger number of basic indicators and components of sustainable development; its data cover many countries and are readily available (Gonzalez-Cabezas et al., 2019). In addition to measuring the level of sustainability, the Sustainable Society Index monitors progress towards sustainability (Y. Ding et al., 2018).

At the country level, the need for the existence of a concordance between the administration of social, environmental, and economic resources can be identified (Ahmad et al., 2018; Manzhynski et al., 2015). Thus, it may be asked whether the different dimensions of triple bottom line influence the countries' economic development in a positive way; the following hypotheses were formulated:

H1. The (a) social, (b) environmental, and (c) economic dimensions of triple bottom line, when aggregated, have a positive influence on economic development in Organisation for Economic Co-operation and Development countries.

H2. The categories (a) basic needs, (b) personal development and health, (c) balanced society, (d) natural resources, (e) climate and energy, (f) energy transition, and (g) economy, when aggregated with all other categories representing the three dimensions of the triple bottom line, have a positive influence on the economic development in Organisation for Economic Co-operation and Development countries.

3.2.2.1 Social Dimension

The social dimension refers to the social elements of the community and employees who are the recipients of the outcome of the business exercise (Schönborn et al., 2019). It translates into an ethical standard of behaviour for the longevity of humanity (Munny et al., 2019). Social sustainability works especially with human beings and social capital orientation, aggregating civil and human rights, community and social responsibility, safety and health requirements, employment, and public perceptions (Cooper et al., 2018; Ranjbari et al., 2021). Standard of living, human capital, equality, living standards, and prosperity can be included in social indicators, although these have a subjective genesis (Usmani et al., 2021). For Schönborn et al. (2019), it is acceptable to assume that social sustainability can be mirrored in a corporate culture characterised by primary values and assumptions that are underpinned by the idea, scope, and principles of social sustainability. When thinking about corporate culture, it should be kept in mind the seed for reflection left by Zott (2010), who sees the business model as a set of interdependent activities that exceed both the company's focus and

its limits, enabling stakeholders to create and appropriate part of the company's intrinsic value (Zott & Amit, 2010). The need to measure and compare social value creation (Kroeger & Weber, 2014) and the pursuit of ways and models of social value creation have already been germinated in several studies (Chell, 2007; Foster & Bradach, 2005; Narangajavana et al., 2016; Pearce & Doh, 2005). However, there remains a lack of studies that expand the range of measurements and assess the impact of social value (Certo & Miller, 2008; Mair & Martí, 2006; Murphy & Coombes, 2009; Narangajavana et al., 2016). In this context, the following hypothesis was formulated:

H3. The categories (a) basic needs, (b) personal development and health, (c) balanced society, of the social dimension of triple bottom line have a positive influence on economic development in Organisation for Economic Co-operation and Development countries.

3.2.2.2 Environmental Dimension

In turn, the environmental dimension seeks that the global systems that support life are secured indefinitely (Goodland, 1995). It embraces the management of limited biophysical resources by managing them and seeking their reduction in processing (Roy et al., 2020). The view that environmental sustainability is a constraint on the economic strength of business and a luxury has changed (Goerner et al., 2009). The aim of this concept is the simultaneous achievement of economic development and environmental sustainability (Tachega et al., 2021). The link between corporate and environmental performance is impacted by the heterogeneity of organisations' ability to manage the various aspects of their operations (Rahnnan et al., 2020). It should be noted that environmental performance has consequences for the stakeholders involved in the company's operations (Chelan et al., 2018). Market players create pressure for companies to operate in an environmentally conscious way (Rahnnan et al., 2020). As consumers become more aware, the pressure for organisations to change their value creation process increases (Dwivedi & Paul, 2022). Multinationals are at the top of the competitive and social pressures to adopt environmental and sustainable strategies (Bouguerra et al., 2022). Environmental associations and governments are increasingly highlighting all problems linked to the environment (X. Zhang & Hou, 2022). Humanity's survival is directly linked to the achievement of environmental sustainability, which is one of the most pressing concerns all over the planet (Roy et al., 2020). In this way, the following hypothesis was formulated:

H4. The categories (a) natural resources and (b) climate and energy of the environmental dimension of triple bottom line have a positive influence on economic development in Organisation for Economic Co-operation and Development countries

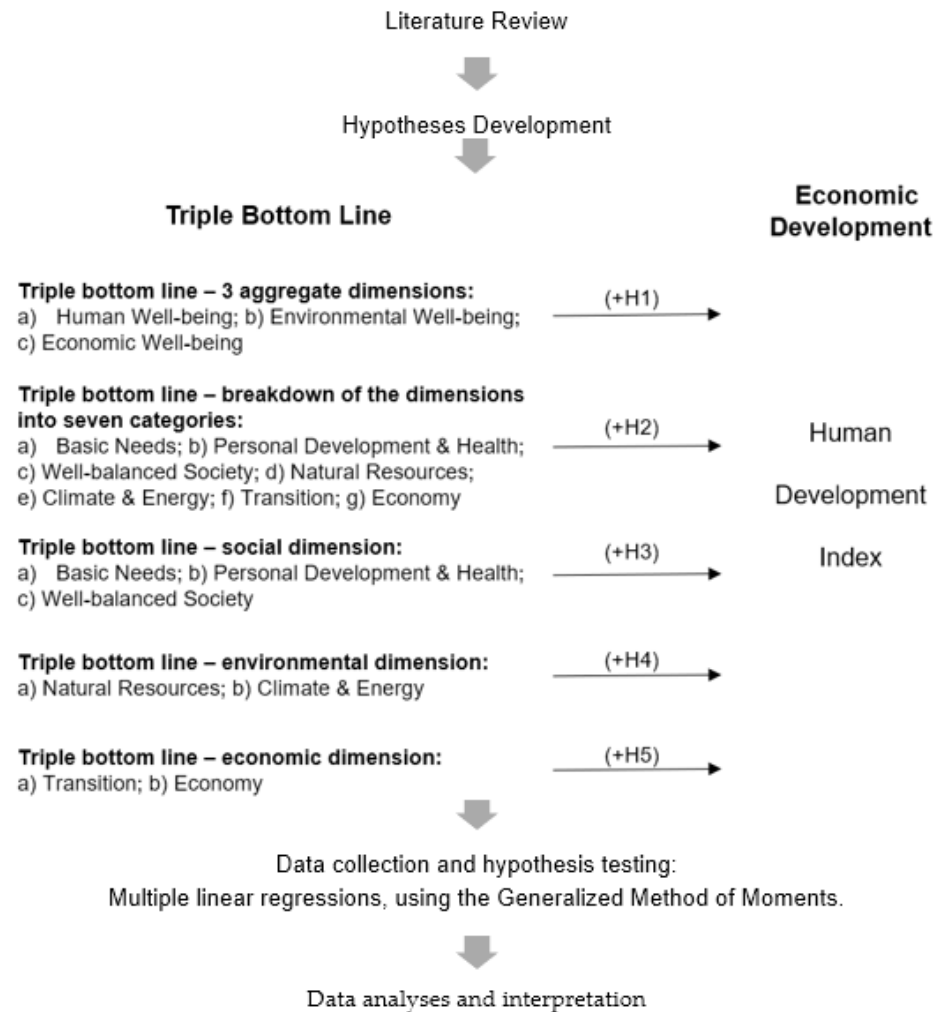
3.2.2.3 The Economic Dimension

The economic dimension concerns the outcome of the company's business performance in the economic system (Elkington, 2006). It is truly fixed in the culture of companies as profit is the main objective of their activities (Arya et al., 2020). It is commonly accepted that economic sustainability is ethically based on the search for justice in the forum of human–nature relations in a perspective of an uncertain and long-term future (Chelan et al., 2018). The organisation's growth is linked to the growth of the economy by the economic line and the quality of its contribution in its support (Alhaddi, 2015). In other words, this dimension focuses on the economic values made available by organisations to the environment in order to provide prosperity and support for future generations (Alhaddi, 2015). Thus, the economic dimension is one of the subsystems of sustainability that facilitate survival and evolution towards the future (Spangenberg, 2005). In several contexts, it is given more importance (Brozzi et al., 2020; Lindahl et al., 2017) because it translates more directly to the interests of companies (Davis-Sramek et al., 2018). It is a vital element of their existence (Markley & Davis, 2007), while the other two dimensions (social and environmental) reflect the actions of the company towards third parties (Busse, 2016). However, little information is available on the economic sustainability of the economy (Spangenberg, 2005). Knowing that economic growth can have adverse effects on society (Abad-Segura & González-Zamar, 2021), it is imperative to understand whether the influence of the economic dimension of triple bottom line on countries' economic development is positive.

H5. Categories (a) energy transition and (b) economy of the economic dimension of triple bottom line have a positive influence on economic development in Organisation for Economic Co-operation and Development countries..

Figure 9 provides an overview of the hypotheses formulated and the research model.

Figure 9 - Research model and the hypotheses formulated.



Source: Own elaboration.

3.3 Materials and Methods

3.3.1 Sample

Starting from the main objective of analysing the influence of triple bottom line on countries' economic development, a sample of 38 Organisation for Economic Co-operation and Development countries and the period from 2006 to 2019 were considered.

Human Development Index data were collected from the United Nations Development Programme (UNDP, 2022) and Sustainable Society Index data from the Technische Hochschule Köln (THK, 2022). Human Development Index was used as a proxy for economic development, which was previously used as the dependent variable by authors A. Hussain and Dey (2021) and Zelenkov and Lashkevich (2020). The three

dimensions (human wellbeing, environmental wellbeing, and economic wellbeing) and the seven categories (basic needs, personal development and health, well-balanced society, natural resources, climate and energy, transition, and economy) of the Sustainable Society Index represented the triple bottom line and were the independent variables. These Sustainable Society Index variables as measures of triple bottom line were used by authors Larson (2021) and Rodríguez-Rosa et al. (2017). Table 5 contains a description of the dependent and independent variables.

Table 5 - Description of variables.

Acronyms	Variables		Data sources
		Dependent	
HDI		Human Development Index	United Nations Development Programme
		Independents	
	Sustainable Society Index Dimensions	Sustainable Society Index Categories	Sustainable Society Index Indicators
HuW	1. Human Well-being		
BN		1. Basic Needs	1. Sufficient Food 2. Sufficient to Drink 3. Safe Sanitation
PD& H		2. Personal Development & Health	4. Education 5. Healthy Life 6. Gender Equality
WS		3. Well-balanced Society	7. Income Distribution 8. Population Growth 9. Good Governance
EnW	2. Environmental Well-being		
NR		4. Natural Resources	10. Biodiversity 11. Renewable Water Resources 12. Consumption
C&E		5. Climate & Energy	13. Energy Use 14. Energy Savings

Acronyms	Variables		Data sources
		15. Greenhouse Gases	International Energy Agency
		16. Renewable Energy	World Bank
EcW	3. Economic Well-being		
Tr		6. Transition	Research Institute of Organic Agriculture
		17. Organic Farming	World Bank
		18. Genuine Savings	
Ec		7. Economy	World Bank
		19. Gross domestic product	
		20. Employment	World Bank
		21. Public Debt	International Monetary Fund - World Economic Outlook

Source: Own preparation, with information taken from Technische Hochschule Köln (THK, 2022) and United Nations Development Programme (UNDP, 2022).

3.2.2 Methods

As the sample involved panel data, a quantitative methodology was used, as described by Jain and Nagpal (2019) and Mance and Kruni (2021). Firstly, a statistical analysis of the dependent and independent variables was conducted. Then, the formulated hypotheses were tested through the estimation of five multiple linear regressions, using the generalised method of moments. It was proposed by Arellano and Bond (1991) and later developed by Arellano and Bover (1995) and Blundell and Bond (1998), allows obtaining efficient estimates. This method is extensively used when dynamic panels constitute the sample because it is asymptotically normal and consistent over large samples, demanding no specification of the distribution of error terms (Greene, 2020; Hall, 2007). It also allows dealing with autocorrelation problems typical of this type of sample, as well as with the potential presence of endogeneity and heteroskedasticity (Berger et al., 2009; Chortareas et al., 2012; Fu et al., 2014; A. Kasman & Carvalho, 2014; S. Kasman & Kasman, 2015; Tabak et al., 2012). In addition to providing information about the dynamic behaviour of an individual, it increases the accuracy of estimates (Din et al., 2021; Naresh et al., 2018; Q. Wang et al., 2019).

The estimated models were assumed to be based on Equation (1).

$$Y_{it} = \beta_1 Y_{it-1} + \beta_2 Z_{it} + \mu_{it} + e_{it}, \quad (1)$$

Where Y_{it} is the Human Development Index as a measure of economic development, Y_{it-1} is the lagged Human Development Index variable for the country i in the period $t - 1$ denotes the 10 independent variables concerning the three dimensions and the seven categories of the Sustainable Society Index, μ represents the unobserved effects at the country level, and e is the error term.

3.4 Results

Table 6 contains the statistical description of the dependent and independent variables. The sample consisted of 304 observations from 2006 to 2019.

Table 6 -Statistical description of the variables for all Organisation for Economic Co-operation and Development Economies.

		Mean	Median	Max.	Min.	Std. Dev.
Dependent Variable	HDI	0.88	0.90	0.96	0.70	0.054
	HuW	8.06	8.28	9.10	5.57	0.770
	EnW	3.68	3.60	7.21	1.70	1.036
	EcW	5.90	5.98	8.70	2.51	1.487
Independent Variables	BN	9.86	9.96	10.00	8.55	0.259
	PD & H	8.30	8.31	9.50	6.79	0.478
	WS	6.43	6.90	8.34	2.74	1.398
	NR	5.40	5.29	8.80	1.80	1.297
	C & E	2.89	2.67	6.62	1.00	1.211
	Tr	6.64	6.89	9.51	2.40	1.972
	Ec	5.67	5.73	8.69	2.00	1.789

HDI = Human Development Index; HuW = Human Well-being; EnW= Environmental Well-being; EcW=Economic Well-being; BN= Basic Needs; PD& H= Personal Development & Health; WS= Well-balanced Society; NR=Natural Resources; C&E= Climate & Energy; Tr=6. Transition; Ec= Economy.

Source: own elaboration.

The minimum value of the dependent variable Human Development Index was 0.70 in Colombia in 2006, while the maximum value was 0.96 in Norway in 2019; the mean was 0.88 and the median was 0.90. The low value of the standard deviation of 0.054 makes it evident that a large number of the countries in the sample were clustered around the mean.

Regarding the independent variables, and considering the dimensions of the Sustainable Society Index, it was observed that the HuW had its highest value in Finland, i.e., 9.10, and its lowest value in Colombia, i.e., 5.57; its average was 8.06. EnW had its highest value in Costa Rica in 2014, its lowest in South Korea in 2019, and an average of 3.68. Lastly, EcW had its highest value in Switzerland in 2018, its lowest value in Greece in 2016, and an average of 5.90. Concerning the categories, BN had the maximum value of 10, which was achieved by 27 countries in different years, while the lowest value of 8.55 was achieved in Colombia in 2006; its average was 9.86. In PD & H, the highest value of 9.50 was found in Iceland in 2019, the lowest value of 6.79 was found in Turkey in 2006, and the average was 8.30. For WS, the highest value of 8.34 was encountered in Finland in 2006, the lowest value of 2.74 was also found in 2006 but in Colombia, and the average was 6.43. NR presented the highest value of 8.80 in New Zealand in 2018, the lowest value of 1.80 in 2019 in Norway, and an average of 5.40.

Regarding C & E, the highest value was seen in 2014 in Costa Rica with 6.62, the lowest was seen in 2006 in Luxembourg, and the average was 2.89. Tr had its highest value of 9.51 in Sweden in 2016, its lowest value in Colombia in 2019, and an average of 6.6. Lastly, Ec had its highest value of 8.69 in Norway, its lowest value in Greece in 2018, and an average of 5.67.

The formulated hypotheses were tested in the Eviews10 software (from IHS Markit, Irvine, United States of America) and five multiple linear regression models were estimated (Table 7). Model 1 considers the three dimensions of Sustainable Society Index aggregated, while model 2 considers the disaggregation of the three dimensions of triple bottom line into seven categories of Sustainable Society Index (three of the social dimension, two of the environmental dimension, and two of the economic dimension). Model 3 is made up of the three categories that make up the social dimension of Sustainable Society Index; model 4 is made up of the two categories that make up the environmental dimension of Sustainable Society Index; model 5 is made up of the two categories that make up the economic dimension of Sustainable Society Index.

Table 7 - Results of panel generalised method of moments dependent.

	Model 1 Aggregate Dimensions	Model 2 Aggregate Categories	Model 3 Social Dimension	Model 4 Environmental Dimension	Model 5 Economic Dimension
HuW	0.043 (0,003) ***				
EnW	-0.016 (0.002) ***				
EcW	0.002 (0.001)				
BN		0.057 (0.006) ***	0.080 (0.000) ***		
PD & H		0.066 (0.004) ***	0.057 (0.000) ***		
WS		0.005 (0.001) ***	0.008 (0.000) ***		
NR		-0.002 (0.001) *		-0.011 (0.002) ***	
C & E		-0.010 (0.001) ***		-0.020 (0.002) ***	
Tr		0.002 (0.001) **			0.010 (0.001) ***
Ec		0.002 (0.001) ***			0.002 (0.002)
Observations:	304				

Note: *** p < 0.01; ** p < 0.05; * p < 0.10; standard errors are shown in parentheses; total panel (balanced) observations: 304. HuW = Human Well-being; EnW= Environmental Well-being; EcW=Economic Well-being; BN= Basic Needs; PD& H= Personal Development & Health; WS= Well-balanced Society; NR=Natural Resources; C&E= Climate & Energy; Tr=6. Transition; Ec= Economy.

Source: Own elaboration.

In model 1, the influence of the social, environmental, and economic dimensions on the Human Development Index when aggregated was analysed. It can be concluded that only the social dimension had a positive influence on Human Development Index in Organisation for Economic Co-operation and Development countries. The results showed a significant and positive influence of human wellbeing on Human Development Index ($\beta = 0.043$). On the other hand, the relationship between Human Development Index and environmental wellbeing was significant and negative ($\beta = -0.016$). Lastly, the relationship between economic wellbeing and Human Development Index was not significant. Thus, Hypothesis H1a was confirmed, but Hypotheses H1b and H1c were rejected.

Turning to the categories that make up each of the three dimensions of the triple bottom line, model 2 was used to analyse the breakdown of the dimensions into seven categories. It was found that the categories that concern the social and economic dimensions had a positive influence on Human Development Index, while those that represent the environmental dimension did not have a positive influence on Human Development Index. That is, the basic needs variable had a positive influence on Human Development Index ($\beta = 0.056$); the personal development and health variable also had a positive influence on Human Development Index ($\beta = 0.066$); lastly, the well-balanced society variable also had a positive influence on Human Development Index

($\beta = 0.005$). Thus, Hypotheses H2a, H2b, and H2c were accepted. Regarding the variables of the environmental dimension, the variables of natural resources and climate and energy had a negative influence on Human Development Index ($\beta = -0.002$ and $\beta = -0.010$, respectively). Thus, Hypotheses H2d and H2e were rejected. Lastly, regarding the variables representing the economic dimension, the transition variable had a β of 0.002, and the economy variable had a β of 0.002. That is, they had a positive influence on Human Development Index, leading to the acceptance of Hypotheses H2f and H2g.

According to model 3, where only the aggregation of the categories that represent the social dimension of triple bottom line was considered, it was found that they had a positive influence on Human Development Index. That is, the variable basic needs had $\beta = 0.080$, the variable personal development and health had $\beta = 0.057$, and the variable well-balanced society had $\beta = 0.008$, leading to the acceptance of Hypotheses H3a, H3b, and H3c.

In turn, in model 4, which only considers the aggregation of the categories that translate the triple bottom line's environmental dimension, the variables did not have a positive influence on the Human Development Index. That is, for the variable natural resources, $\beta = -0.011$ was found, whereas, for the variable climate and energy, $\beta = -0.019$ was found. Thus, Hypotheses H4a and H4b were rejected.

Lastly, in model 5, which observes the behaviour of the categories representing the economic dimension when aggregated, the variable transition had a positive influence on Human Development Index ($\beta = 0.010$), whereas the economy variable was not statistically significant. Therefore, hypothesis H5a was accepted, but H5b was rejected. Table 8 presents a summary of the results.

Table 8 - Summary of results.

Model 1 Aggregate Dimensions	Model 2 Aggregate Categories	Model 3 Social Dimension	Model 4 Environmental Dimension	Model 5 Economic Dimension
H1a Accepted H1b Rejected H1c Rejected	H2a Accepted H2b Accepted H2c Accepted H2d Rejected H2e Rejected H2f Accepted H2g Accepted	H3a Accepted H3b Accepted H3c Accepted	H4a Rejected H4b Rejected	H5a Accepted H5b Rejected

Note: Own elaboration.

3.5 Discussion

Human wellbeing encompasses categories that consider the satisfaction of the population's basic needs, personal development, and the health and balance of society. Therefore, it is easy to understand that this dimension has a positive influence on Human Development Index, as found in the study, as activities that provide the attainment of satisfaction of these categories are themselves drivers of economic development. Statements from studies prior to this stated that food insecurity is higher in low-income countries (Dudek, 2019; M. D. Smith et al., 2017). Cultural characteristics have the power to affect economic development through the activity of institutions (Tabellini, 2010). Moreover, the integration of girls into education (Sommer & Fallon, 2020), female empowerment (Wyndow et al., 2013), and education (Cui & Martins, 2021) have a positive outcome on the generation of economic development. Health efforts also promote a healthy and productive population (Gupta et al., 2002).

Environmental wellbeing consists of two categories, natural resources and climate and energy. Environmental protection has been perceived as an obstacle to economic development (Z. Wang et al., 2015), which is not a consensual idea (B. Peng et al., 2020). The results indicate no positive effect on Human Development Index when environmental wellbeing increases. This finding is in line with the study of Lai et al. (2020), in which economic development suffered negative effects from environmental protection. Furthermore, B. Peng et al. (2020) concluded that environmental protection could slow down economic development in the short run. However, there is a growing awareness on the part of governments that economic development can be negatively affected by climate change (Carraro, 2016).

The effect of economic wellbeing on Human Development Index was not statistically significant, which may be explained by the conflict that its indicators carry and that translate into the conflicts between economic growth and economic development. The economic dimension denotes the concern with profit to the detriment of environmental and social concerns (Busse, 2016). When analysed, it can be seen that it represents growth measures whose nature is quantitative and that it does not translate the level of the quality of life in society (Abad-Segura & González-Zamar, 2021). Furthermore, the improvement of economic indicators is not achieved without costs to the environment (Charfeddine & Mrabet, 2017). There are a series of problems resulting from economic growth (Brueckner & Lederman, 2018).

Turning to the categories that make up each of the Sustainable Society Index dimensions, these categories were analysed in different models. Starting with the categories that make up human wellbeing (basic needs, personal development and

health, and a well-balanced society), through this study, it was found that their influence on economic development was positive. This was the case whether they were analysed together with the other Sustainable Society Index categories (model 2) or when they were chosen as the elements that make up model 3, reflecting the social dimension of triple bottom line. Thus, the basic needs category, encompassing the indicators of sufficient food, sufficient to drink, and safe sanitation, had a positive influence on the economic development. The possibility of access to safe water provides enormous opportunities for economic development (Wydra et al., 2019). Safe sanitation is elementary for economic development, and its implementation is a good investment (Hutton et al., 2020; Van Minh & Hung, 2011). The personal development and health category had similar behaviour, influencing economic development positively in both models. This category was composed of the indicator's education, healthy life, and gender equality, and it had a positive influence on economic development. In fact, the results reinforce the results of Pan (2014), stating that economic development can be stimulated by the government through the expansion of its investment in education. Education is a basic condition for rapid economic development (Gylfason, 2001). An increase in life expectancy brings a higher return (Bloom et al., 2021; Kalemli-ozcan, 2003; Turan, 2020). Economic development can be promoted by gender equality, and accounting for its multiple dimensions is vital for economic development (Perrin, 2021). The well-balanced society category aggregated income distribution, population growth, and good governance indicators. It also had a positive influence on economic development in both models, corroborating previous findings. In line with these reflections are those of Tian and Li (2019), who considered income distribution as a crucial element that influences welfare and social stability, as well as of Dutt and Tsetlin (2021), who saw high degrees of inequality as having a corrosive influence on economic development. The population growth indicator reflected that for resources, nature, and food supply, a decrease in population would be positive. Its positive influence on economic development is in line with the claims of Bloom et al. (2021), who argued that a decrease in the number of children leads to an increase in income in the short and long term, and Baldanzi (2021), according to whom a lower rate of population growth is related to faster economic growth. There is also empirical evidence that the quality of political institutions highlights economic development (Holmberg et al., 2009) and promotes it (Bergh, 2014).

Attention is now given to the categories that make up environmental wellbeing. Here again, they were analysed from two perspectives: together with all other Sustainable Society Index categories (model 2) and as representatives of the environmental dimension of triple bottom line (model 4). These categories were as

follows: natural resources (with the indicators biodiversity, renewable water resources and consumption) and climate and energy (energy use, energy savings, greenhouse gases, and renewable energy). The results of these categories had a negative influence on economic development. Natural capital puts pressure on human capital and reduces the speed of economic development (Gylfason, 2001). Lai et al. (2020) concluded that economic development suffers negative effects from environmental protection, and Duan et al. (2021) assumed that protected environmental areas have a negative effect on income and increase inequality.

Lastly, the economic wellbeing dimension encompassed two categories: transition and economy. Model 2 encompassed a study considering all categories and their positive influence on economic development. In the model in which they were considered isolated and as representatives of the economic part of the triple bottom line (model 5), the transition category had a positive influence, while the economy category is not statistically significant. The transition category consisted of the indicators organic farming and genuine savings. Earlier evidence that organic farming may constitute an opportunity for economic development was found (Qiao et al., 2016), and its adoption is subject to monetary considerations (Mzoughi, 2011). On a national level, genuine savings represents a key indicator for economic development (Hanley et al., 2015; McGrath et al., 2022), and, when underpinned by environmental quality and natural capital assets, it results in increased wealth (Banerjee et al., 2021). In certain circumstances, it precedes economic growth (Lindmark & Acar, 2013). The economy category considered in model 2 had a positive influence on economic development; however, when considered in model 5, it was not statistically significant. Bear in mind that this dimension mirrors the indicators gross domestic product, employment, and public debt; thus, it is easy to agree with Schumpeter's view that finance has great importance for economic development and improves economic efficiency (King & Levine, 1993), and that, in relation to employment, when there is a qualitative increase in the production of employment, economic complexity also increases and the countries which achieve this have a favourable economic development (Gala et al., 2018). In relation to public debt, there is a discussion about whether or not it is an obstacle to economic development since it may limit or condition the actions of governments, because, when public debt is high, it constitutes a restriction to economic development (Awdeh & Hamadi, 2019).

Reflections of Zapf (1996) should also be considered because, although this study was longitudinal, it could be assumed that a link between the economic development and the variables adopted as representatives of the triple bottom line may exist. In this case, it is possible that economic development itself influences the

behaviour of the triple bottom line dimensions and the studied categories. In addition to this, there may be other variables that can influence the dependent and independent variables, which will produce a relationship between them.

3.6 Conclusions

The triple bottom line approach is central to the progress of economic development, and little attention has been paid to it (Hammer & Pivo, 2017). This study aimed to analyse the influence of the triple bottom line on economic development. The research has revealed the relationships between the sustainable action taken and the outcomes achieved. It can be concluded that the social dimension of the triple bottom line has a positive influence on economic development, the environmental dimension has a negative influence on economic development, and the economic dimension of the triple bottom line, not having a positive influence on economic development in all the analysed aspects, is a translator of conflicting synergies.

It should be noted that the fact that the model not only represents the aggregated dimensions of the triple bottom line, but also the aggregation of the categories that were elected as constituents of the triple bottom line, as well as the individual consideration of each of the dimensions, allowed the conclusions to be supported by more detailed reflections. This allowed for a better translation of the spirit of the hypotheses made.

This study considered Human Development Index as a proxy for economic development, and this indicator encapsulated some limitations that were reinforced by the results. It becomes even more evident the need for theoretical reflection to consider the inclusion in the Human Development Index of indicators that translate the environmental dimension into the economic development. The biocapacity of forests, cropland, grazing land and fisheries, and carbon emissions (Ture & Türe, 2013), CO₂ emissions per capita (Biggeri & Mauro, 2018; Bravo, 2015; Ray, 2014), or CO₂ emissions and material footprint (Hickel, 2020) could be some examples of indicators.

Despite the contributions of this study, it is not without limitations. It is possible that a reversed causation problem exists and that unobserved factors that simultaneously affect triple bottom line and economic development were not considered. In future studies, this causal relationship between triple bottom line and economic development should be further investigated. The use of Sustainable Society Index to measure triple bottom line and of Human Development Index to measure economic development instead of other variables may have biased the results.

Additionally, the choices made when performing the econometric techniques may have influenced the results, as suggested by Dogan and Turkekul (2016).

To broaden the understanding of the influences of triple bottom line in economic development, future research should take a three-pronged direction. That is, in order to seek avenues that solidify the driving role of the social dimension of triple bottom line in economic development, the factors that influence social sustainability should be investigated. Bearing in mind that the planet's finite natural resources are the glue that binds societies and generations, the role of the environmental dimension of triple bottom line needs further exploration to assess the conditions that affect environmental sustainability. Lastly, it should be noted that it is vital to clarify the direction of the forces that drive the economic dimension of triple bottom line. Therefore, further analyses need to be carried out to explain the drivers of economic sustainability.

3.6.1 Managerial implications

This study contributes to the understanding of the influence that triple bottom line and each of its dimensions exert on economic development. This urgent and necessary understanding contributes to the alignment of measures that must be taken so that Sustainable Development Goals are achieved. It should be noted that supporting the progress of the social dimension of triple bottom line is not only a guarantee of a qualitative improvement in the lives of populations but also a driver of economic development. Thus, governments should consider investments in projects that increase the level of human wellbeing as a way of stimulating economic development. Policies are also needed to improve coordination between environmental protection and economic development objectives so that conflicting synergies between these two forces can converge and improve the economic development framework. Governments should also assess and address vulnerabilities arising from high public debt to increase their capacity to implement policies that foster economic development.

3.6.2 Practical/social implications

This study highlighted the need for the academy to contribute to the reflection on the best paths to take towards an economic development that must be sustainable, and that represents not only a struggle for survival, but also the concerns of social, environmental, and economic justice. It strengthens the link between triple bottom line and economic development by showing the need for the evolution of triple bottom line to this academic field.

Triple bottom line aims to create a sustainable base (social, environmental, and economic) that can be enjoyed fairly. It is on the basis of this foundation that an economic development that focuses more on the general wellbeing of populations than on the mere sum of advances in economic growth can be created. It is, therefore, imperative to expand the study of triple bottom line to include economic development, to which this analysis contributes, reducing the scarcity of studies that relate these two themes. It also reduces the lack of studies considering triple bottom line and economic development at the country level. Furthermore, the investigation of the influences of the triple bottom line dimensions on economic development adds new perspectives to earlier discussions. It also identifies the social dimension as inciting economic development, the environmental dimension as decelerating economic development, and the economic dimension as encompassing conflicting synergies in economic development.

CHAPTER 4 - THE ECONOMIC DIMENSION OF THE TRIPLE BOTTOM LINE AS A PREDICTOR OF THE FINANCIAL SUSTAINABILITY OF COMPANIES

Abstract:

Triple bottom line may be one of the best weapons in one of today's biggest business challenges, achieving sustainability. Despite the importance of the economic dimension of triple bottom line for companies' competitiveness, financial sustainability remains undervalued in research and business management practices. Thus, there is a need to deepen the knowledge about the relationship between sustainable business practices and the economic performance of firms. This study aims to analyse the influence of the economic dimension of triple bottom line on corporate financial performance. Three multiple linear regression models were estimated by the Generalised Method of Moments for a sample of 70 057 Portuguese companies grouped according to their size. The results reveal that the economic dimension of Triple Bottom Line influences the financial performance of companies in a positive way, both at the level of value creation and from the perspective of company continuity. The study uses accounting indicators as representatives of the economic dimension of the triple bottom line and its consideration in conjunction with the stakeholder theory. The use, monitoring and evaluation of financial indicators of value and continuity that translate the application of triple bottom line in the financial performance of companies may lead them to achieve financial sustainability. Thus, these indicators should be incorporated into companies' management control systems, and their business models should be developed and improved based on these reference indicators.

Keywords: Triple bottom line; economic dimension; financial sustainability; business performance; business strategy; stakeholder theory.

4.1 Introduction

Achieving the levels of sustainability imposed by 2030 Agenda is one of the main challenges for companies. To become, or to remain, sustainable, companies need to learn to deal with their own development (Sari et al., 2020). One of the tools available to companies to deal with the sustainability issue is the triple bottom line framework. The triple bottom line construct, designed by Elkington in 1996, sees companies and organisations as value creators in several dimensions and argues that this value should be accounted for (Elkington, 2006; Q. Farooq et al., 2021; Solaimani & Sedighi, 2020). Having been designed for businesses, the triple bottom line focuses on finding balance and consistency in businesses' social, environmental and economic values (Alhaddi, 2015; Goh et al., 2020). This is at the heart of triple bottom line, also identified as the 3Ps: Profit, Planet and People (He et al., 2019). As such, it is made up of three dimensions, economic, environmental and social (J. G. Wu, 2013) and emphasises the concordance between economic well-being, the condition of the environment and the parity of the members of a society (Glavas & Mish, 2015). It is translated by the effect of an organisation's activities, arising from its will or legal impositions, that reveal its aptitude to maintain financial viability without its operations causing negative impacts on the ecological or social systems (P. A. C. Smith & Sharicz, 2011). Triple bottom line should be incorporated into a company's language (G. Kumar & Goswami, 2019).

Firms should understand triple bottom line activities as opportunities to strengthen competitive advantage and strategic position (Ferro et al., 2019). Actions that make economic performance thrive and take care of environmental and social issues are expressly indicated by triple bottom line (Carter & Easton, 2011). One of the key concepts in sustainable development is the economic dimension (Berglund & Gericke, 2018). It is this dimension that expressly accounts for the financial performance of companies (Carter & Easton, 2011). In the long-term reasoning, profit is the decisive factor for companies to focus on sustainability issues. (J. Lu et al., 2022). The pressures on companies to succeed and to sustain that success in the future is increasing (Alshehhi et al., 2018). In this context, companies' ability to grow economically enables them to achieve favourable financial performance (Carter & Rogers, 2008). In this way, the economic dimension of triple bottom line creates the link between the economic growth of the company and the economic system surrounding it, making progress and the ability to sustain future generations possible (Alhaddi, 2015). On the other hand, it allows aligning the business strategy with the results that stakeholders expect, bringing the objectives of the different stakeholders closer to sustainable financial accounting (Molecke & Pinkse, 2017).

The economic dimension of triple bottom line encompasses all intra and intergenerational issues, in a concern for long-term existence, across a wide range of company functions, such as production, purchasing, marketing or logistics (Gleißner et al., 2022). These concerns translate into financial sustainability, whose exclusive objective is the financial security of companies in the long term (Gleißner et al., 2022), maximising companies' value and guaranteeing their continuity.

Although financial sustainability is explained in the Sustainable Development Goals, it is still unclear how business practices can achieve it and how companies can apply it to their financial strategies. The economic dimension of triple bottom line can help achieve financial sustainability, and it is vitally important to understand how the forces that make up the economic dimension of triple bottom line work (Nogueira et al., 2022). There is also a need: for further research to deepen the knowledge of corporate financial levers that can support sustainability profitability (Cupertino et al., 2022); to understand the relationship between sustainable business practices and corporate financial performance (Alshehhi et al., 2018); and, that is dedicated to the assessment of the financial sustainability of companies (Zabolotnyy & Wasilewski, 2019).

Despite the growing interest in research between companies' sustainable practices and their financial performance, there is no consensus (Alshehhi et al., 2018; Gleißner et al., 2022) on their effect and relationship. Financial sustainability is a decisive control criterion but remains under-represented in research and business management practices (Gleißner et al., 2022). Thus, this study aims to analyse the influence of the economic dimension of triple bottom line on corporate financial performance. Two important research questions arise: Will applying the economic dimension of triple bottom line achieve financial sustainability? What is the relationship between firms' value creation and firms' continuity with financial sustainability?

This study is one of the first to start from the relationship of the economic dimension of triple bottom line with the performance of companies to gauge financial sustainability. Another of the original attributes of this study is that accounting indicators of firms represent the economic dimension of triple bottom line. It departs from quantitative techniques, using accounting data of firms to conduct an econometric analysis using the Generalised Method of Moments supported on a panel of financial data on firms from 2010 to 2020. These data reflect the performance of companies. It should also be noted that a differentiated approach to stakeholder theory was carried out. The study considers applying the basic principles of the economic dimension of triple bottom line in concordance with the stakeholder theory. This new approach can enable companies to achieve financial sustainability, creating value and ensuring the continuity of the companies.

4.2 Literature review and hypotheses development

4.2.1 Stakeholder theory

When we think about the relationships between corporate sustainability and the financial performance of companies, the stakeholder theory is predominant (N. Hussain, Rigoni, & Cavezzali, 2018). The development of a strong relationship with stakeholders, thanks to the ethical behaviour of companies, allows them to acquire a competitive advantage (McWilliams & Siegel, 2001). Companies have a mission, and their ability to achieve the goals for its realization can affect or be affected by stakeholders (E. Freeman, 1984). We can see the company as an organisation made up of interdependent parts, but with opposing intentions, and the attempt to align the interests of the owners with those of the different groups interested in the operation of that company is the goal of the stakeholder theory (Deegan, 2002; Gray et al., 1995). The notion that there is a group whose support is vital to the survival of organisations was the original definition of the stakeholder concept (E. Freeman, 1984). This implies that stakeholders' needs and concerns have to be considered when thinking about strategy and formulating corporate objectives so that the company continues to garner the support necessary for its survival (E. Freeman, 1984). It is from the integrated action of the multiple stakeholders that benefits will be obtained for all (Ferro et al., 2017). When we think about adopting sustainable management practices, the pressures exerted by stakeholders such as shareholders, suppliers, clients, communities, governments, competitors and non-governmental organisations, among others, are crucial in considering or not considering their adoption (González-Benito & González-Benito, 2006; Haleem et al., 2022; Wolf, 2014; Q. Zhu et al., 2005).

4.2.2 Financial performance

Creating wealth that at least covers costs is vital for a successful sustainable business model (J. Lu et al., 2022). The effectiveness with which a company employs its assets and resources to optimise its profitability is translated by financial performance measures (A. Ullah et al., 2020). Financial performance can be adequately measured by return on assets (Gligor et al., 2015). This is one of the most popular accounting-based measures of financial performance. (Carmo et al., 2022; Chakrabarti & Chakrabarti, 2019; Jaworski & Czerwonka, 2021; J. Xie et al., 2019) and can be used as a source of data for the most complex mathematical models (Myšková & Hájek, 2017). Return on assets measures the capacity to use the company's assets (Leonidou et al., 2013; Lindemanis et al., 2022; A. Ullah et al., 2020). It's calculated

from earnings before interest, taxes, and total assets. (J. Xie et al., 2019). Therefore, comparing companies' profitability with different degrees of indebtedness is possible. (Lindemanis et al., 2022). The improvement in return on assets can be achieved by decreasing costs or assets, increasing revenues, or combining these three strategies. (Gligor et al., 2015).

4.2.3 Financial sustainability

The overarching goal of sustainability is to address consumerism in a way that the expenditure of resources does not compromise their future availability (A. Kumar et al., 2022). Financial sustainability strives for the development and survival of companies while trying to generate value for investors (Hou et al., 2019). Business security, stability and viability are benchmarks for companies' financial sustainability (Zabolotnyy & Wasilewski, 2019). A long-term financial balance that resists external threats and negative impacts is synonymous with financial security (Delas et al., 2015). The capacity to generate profit and increase invested capital defines financial stability. (Myšková & Hájek, 2017). And financial viability is the distribution of a company's financial results that attests to the company's long-term sustainable development (Koleda & Oganisjana, 2015). These assumptions are in line with what this study assumes with financial sustainability. This study starts from the vision of financial sustainability along the lines of Zabolotnyy and Wasilewski (2019), who define it in two dimensions, value and continuity, and who bear in mind that the relationship between return and risk is not linear and is influenced by multiple endogenous and exogenous factors. Thus, the long-term survivability of a company and its ability to generate value for its owners are measures that may influence the financial performance of companies as reflected by the optimisation of profitability, activity, liquidity and leverage indicators.

4.2.3.1 Business value

This study's first set of indicators represents companies' value vectors. The financial factors relate to operating efficiency, productivity and profitability (Zabolotnyy & Wasilewski, 2019)-

One of the most important accounting measures is return on equity, which translates accounting returns by measuring companies' operating results, considering the generally accepted accounting principles (A. S. Chen & Lin, 2011). It represents the net profit to equity ratio (M. W. Peng, 2004). Since net profit to equity sets the optimal level of equity retirement, cash patronage refunds and growth to be maintained, it is an

appropriate measure of the opportunity cost of equity (Royer, 2019). Consequently, the net profit to equity ratio change reflects the risk (Pokharel et al., 2020). Future earnings can be forecasted from this ratio (H. Y. Yu et al., 2022) and net profit to equity is strongly correlated with corporate governance (Shanyu, 2022) and positively linked to stock returns (Araujo & Machado, 2018; Shanyu, 2022). So, the following hypothesis was formulated:

H1: The net profit to equity ratio, as a proxy for the economic dimension of triple bottom line, has a positive influence on the return on assets of a) small, b) medium, and c) large companies.

The strength of companies can be represented by their assets (Shi, 2021). Therefore, when we look at the company's value drivers, we should analyse the asset structure. This can influence the financial performance of companies (Reyhani, 2012; Santosa, 2020; Vo, 2017) and establishes that the current and fixed assets' allocation takes evidence of which assets support the operational activities (Santosa, 2020). Companies with assets able to cover their debts have easier access to financing. (Santosa, 2020). However, an increase in liquidity caused by an increase in current assets can be synonymous with management's inability to expand the business. (Santosa, 2020). It becomes evident the importance of the balance between investment in assets, which makes the company solid in the eyes of investors, and the optimisation of current assets. In this study, the ratio of total assets to current assets was used to assess the positive influence of asset structure on firms' performance. This led to the formulation of the following hypothesis:

H2: The total assets to current assets ratio, as a proxy for the economic dimension of triple bottom line, has a positive influence on the return on assets of a) small, b) medium, and c) large firms.

Another measure of firm value is the asset turnover ratio, which translates how efficiently or not, managers use assets to create profits (Barbuță-Mișu et al., 2019; Chadha & Sharma, 2015; M. Singh & Davidson, 2003). This ratio of revenue to total assets not only helps investors understand how companies use assets to generate sales (Fairfield & Yohn, 2001). It also enables comparisons to be made between similar companies (Sawalqa, 2021) because it measures the ability of companies to create profits but also to mitigate different costs. (Florackis & Ozkan, 2009). Normally, a continuously rising asset turnover ratio suggests a company's gradual evolution and high profitability (Barbuță-Mișu et al., 2019). It is logical to use efficiency ratios to understand the financial performance of firms (L. Li et al., 2018) since it can be

assumed that the efficient use of assets generates positive returns (Chakrabarti & Chakrabarti, 2019). Thus, there may be a positive relationship between firms' performance and asset turnover ratio as shown by Chakrabarti & Chakrabarti (2019) and L. Li et al. (2018). Since this ratio is a way to evaluate the ability of firms to create wealth, hypothesis 3 was formulated:

H3: The assets turnover ratio, as a proxy for the economic dimension of triple bottom line, has a positive influence on the return on assets of a) small, b) medium, and c) large firms.

4.2.3.2 Business continuity

Another measure of the financial sustainability of companies is the continuity principle, which represents the long-term survivability of companies. The notion that companies should maintain their activity in the future is the basic accounting principle for most recognition and assessment criteria (Gallizo & Saladrigues, 2016). The liquidity and capital structure analysis may represent the continuity dimension's indicators.

The first continuity indicator considered in this study, the current ratio, translates for all stakeholders, the ability of companies to meet current obligations (Soboh et al., 2011). It is a vital part of working capital management, including the management of current assets and liabilities, which are essential for solvency potentials and viability in the short term (Salehi & Ghorbanzadeh, 2016). All organisations should consider it an important part of their financial management (Enqvist et al., 2014; Seth et al., 2020). It impacts directly on solvency (Beaver, 1966; Berryman, 1983; Nyeadi et al., 2018; Peel & Wilson, 1996), liquidity (C. S. Kim et al., 1998; Opler et al., 1999) and profitability (Jaworski & Czerwonka, 2021; Mazanec, 2022; Ukaegbu, 2014) of companies. With the high monetary values that it represents and with its weight in the activity of companies, the following hypothesis was formulated:

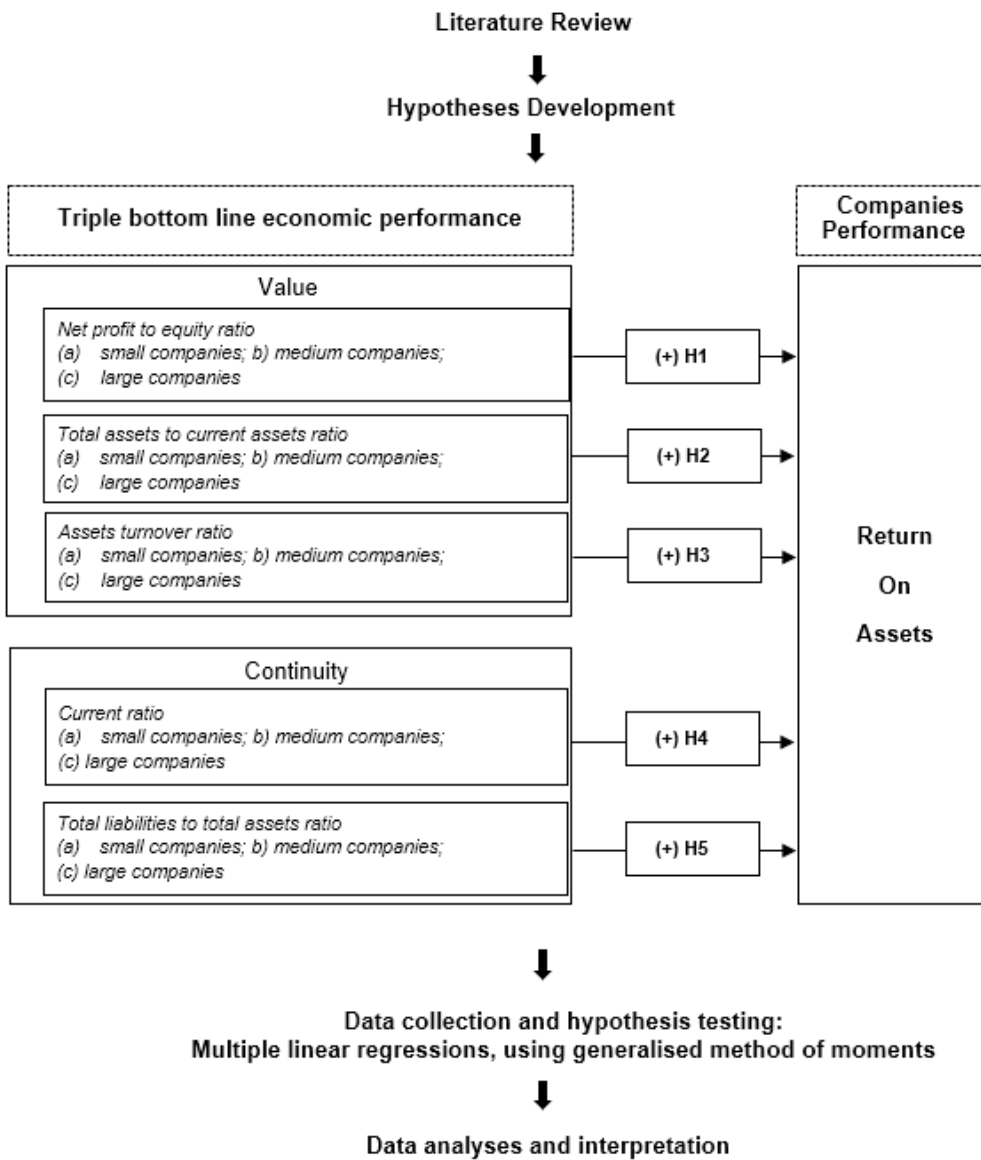
H4: The current ratio, as a proxy for the economic dimension of triple bottom line, has a positive influence on the return on assets of a) small, b) medium, and c) large firms.

The second continuity indicator considered in this study is the total liabilities to total assets ratio, which measures how many liabilities are covered by assets. This is a frequently used indicator (Kliestik et al., 2020), with empirical support that allows its inclusion in firm default models. (Traczynski, 2017). The ratio between total liabilities and total assets reflects how a firm finances its operations by reflecting its capital structure (Nguyen & Nguyen, 2020). It is one of the measures of capital structure (Cole,

2013; Nguyen & Nguyen, 2020). Since the seminal work of Modigliani and Miller (1958, 1963), numerous financial studies have discussed the relationship between capital structure and firm performance, and disparate results have been identified (F. M. Chang et al., 2014). Because a high index may indicate that shareholders' wealth is low and solvency problems exist, in this context, the following hypothesis was formulated:

H5: The total liabilities to total assets ratio, as a proxy for the economic dimension of triple bottom line, has a positive influence on the return on assets of a) small, b) medium, and c) large firms.

Figure 10 - The hypotheses formulated and the research model.



Source: Own production.

4.3 Materials and methods

Given the objective of this study and the hypotheses formulated, we use a quantitative methodology. We built a data panel with accounting information from companies collected in the SABI database for the period from 2010 to 2020. The firms considered in the sample are Portuguese, small, medium and large and that are in active status. Financial companies were excluded because their accounting has very specific aspects that are not comparable with non-financial companies. Thus, we gathered the financial information of 70 057 companies in a sample, of which 17 657 were small companies, 49 371 were medium-sized companies and 3 029 were large companies. The criteria for aggregating companies by size follows the official recommendations of the European Union. Thus, small enterprises are those with between 10 and 49 employees and an annual balance sheet and/or annual turnover equal to or less than EUR 10 million; medium-sized enterprises are those with between 50 and 249 employees and an annual balance sheet not exceeding EUR 43 million and an annual turnover not exceeding EUR 50 million. Those exceeding the limits of medium-sized enterprises are considered large enterprises (European Union Commission, 2003).

With this sample, three multiple linear regressions were estimated by applying the Generalized Method of Moments. This method is suitable for panel data and allows dealing with the potential presence of endogeneity and heteroskedasticity (Berger et al., 2009; Chortareas et al., 2012; Fu et al., 2014; A. Kasman & Carvallo, 2014; S. Kasman & Kasman, 2015; Tabak et al., 2012). It also allows us to increase the estimates' precision and obtain information about the dynamic behaviour of the variables. (Din et al., 2021; Naresh et al., 2018; Q. Wang et al., 2019).

The estimated models are assumed to be based on the following equation (2):

$$Y_{it} = \beta_1 Y_{it-1} + \beta_2 Z_{it} + \mu_{it} + e_{it} \quad (2)$$

In which, Y_{it} is return on assets as a measure of firms' performance; Y_{it-1} is the lagged return on assets variable for the firm i in the period $t - 1$; Z represents the five independent variables for the five indicators (net profit to equity ratio, total assets to current assets ratio, assets turnover ratio, current ratio and total liabilities to total assets); μ are the unobserved effects at the firm level, and e is the error term.

4.3.1 Variables

The dependent variable was the return on assets, because this indicator allows companies to use assets comprehensively (A. Ullah et al., 2020). Memon et al. (2012) used return on assets as a financial performance proxy. It is a widely accepted and effective indicator of earnings creation through the use of assets. Its use as a measure of firms' financial performance has been used in several studies, (namely, Artz et al., 2010; H. Feng et al., 2015; Ha et al., 2022; Mardnly et al., 2018; Wedari et al., 2022; T. H. Wu et al., 2022).

The independent variables used in this study were chosen to start from the view of financial sustainability as the ability of an organisation to continuously generate value for owners through the optimal mix of funding sources and investment (Zabolotnyy & Wasilewski, 2019). Indicators presented seek a balance between these two forces, which may present ambiguous influences. On the one hand, excessive concentration on value creation may cause financial difficulties or even bankruptcy. (Ashraf et al., 2019). On the other hand, when managers focus on continuity, maximising liquidity and solvency, the firm's profitability may decrease (Samiloglu & Demirgunes, 2008). Financial condition, debt, asset condition and capacity for development have been recognised as broad economic indicators (Liang et al., 2018). Thus, as presented in Table 9, three indicators representing the value of the firm (net profit to equity ratio, total assets to current assets ratio and assets turnover ratio); and two indicators to represent the firm continuity (current ratio and total liabilities to total assets), were considered as independent variables. Table 9 also shows the formula for calculating the ratios used in the study.

Table 9 - Depend and independent variables.

Dependent Variable		Formula	Authors
Return on assets		Earnings before interests and taxes/ total assets	Wedari et al., 2022; T. H. Wu, et al., 2014
Independent Variables	Hypotheses	Expected influence	
Net profit to equity ratio	H1 a) b) c)	Positive	Net profit/ equity
Total assets to current assets ratio	H2 a) b) c)	Positive	Total assets/ current assets
Assets turnover ratio	H3 a) b) c)	Positive	Revenue/ assets
Current ratio	H4 a) b) c)	Positive	Current assets/ current liabilities
Total liabilities to total assets ratio	H5 a) b) c)	Positive	Total liabilities/ total assets

Source: Own elaboration.

4.4 Results

Table 10 presents the results of three different multiple linear regression models, estimated with the generalized method of moments. Model 1 considers small firms, model 2 considers medium-sized firms and model 3 considers large firms. Each model analyses the impact of financial ratios on the economic dimension of triple bottom line as measured by return on assets (dependent variable), which is the proxy for firms' financial performance. The hypotheses were tested using Eviews software (IHS Markit, Irvine, United States of America).

Table 10 - Results of generalised panel method of moments (dependent variable - return on assets).

	Model 1	Model 2	Model 3
	Small businesses	Medium-sized enterprises	Large companies
NPE	0.044 (0.389) ***	0.031 (0.404) **	0.080 (5.161) ***
TACA	0.068 (0.000) *	0.046 (0.007) *	0.077 (0.001) ***
AT	0.019 (4.705) ***	0.020 (2.073) ***	0.032 (4.890) ***
CUR	-0.034 (0.000) **	0.415 (0.006) **	0.042 (0.013) *
TLTA	0.017 (0.096) ***	0.333 (0.028) ***	0.017 (0.063) ***
Obs.	157 077	455 094	32 559

Note: *** p < 0.01; ** p < 0.05; *p < 0.10; standard errors are shown in parentheses.

Source: Own elaboration.

In model 1, small companies were considered. The results show that net profit to equity positively influences return on assets ($\beta = 0.044$). Also, the total assets to current assets ratio positively impacts return on assets and its β is 0.068. The β assets turnover ratio indicates a positive influence, with a value of 0.019. On the other hand, the current ratio shows a β of -0.034, and thus its relationship with return on assets is not positive. The total liabilities to total assets ratio has a positive influence on return on assets ($\beta = 0.017$). Thus, hypotheses H1a, H2a, H3a and H5a are confirmed, and hypothesis H4a is rejected.

In turn, model 2 considers medium-sized companies. In this model, the five ratios positively influence the return on assets. That is, for net profit to equity ratio, the β has a value of 0.031, for total assets to current assets ratio, the β is 0.046, the β of assets turnover ratio is 0.020, current ratio has a β of 0.415, and total liabilities to total assets ratio has a β of 0.033. These results confirm that hypotheses H1b, H2b, H3b, H4b and H5b are confirmed.

Finally, in model 3, large companies were considered. Also, all hypotheses, H1c, H2c, H3c, H4c and H5c, were accepted. All independent variables have a positive impact on return on assets (net profit to equity ratio the β has a value of 0.080, total assets to current assets ratio has a β of 0.077, a β of 0.032 is the value of assets turnover ratio, current ratio has a β of 0.042, and finally, total liabilities to total assets ratio presents a β of 0.017).

4.5 Discussion, implications and limitations

4.5.1 Discussion

At the genesis of this study is the intention to analyse the influence of the economic dimension of triple bottom line on firms' financial performance. To this end, this study fits into the stakeholder theory and analyses the financial sustainability of companies as an integral part of the economic dimension of triple bottom line and as an influencer of the financial performance of companies. The bringing together of these scientific fields is fruitful in the contributions it can provide regarding companies' financial returns. Regarding Accounting for Sustainability and Stakeholders, value creation for stakeholders and sustainable development are the aspirations of business activity (Hörisch et al., 2020). It is well known that the better the relationship between companies and stakeholders, the better their financial performance will be (E. Freeman, 1984). In this context, accounting information needs to be adapted to stakeholders' interests and priorities. These stakeholders can define standards or guidelines for sustainability performance measurement or assessment (S. Silva et al., 2019). When we think about sustainability performance measurement and assessment, there is a discrepancy between research objectives (accuracy) and practice (simplicity) (Bansal et al., 2012; S. Silva et al., 2019). Even so, it contributes to the creation of information that enhances the creation of value for stakeholders when evaluating the outcomes of companies (Molecke & Pinkse, 2017). Turning attention to the creation of value for stakeholders can contribute to the development of accounting practices that will be disseminated by companies and will receive the support of stakeholders. For this support to be effective, it is vital to identify the ratios that influence the financial performance of companies. And that contributes so that the separation between economic and sustainable accounting and between financial and other stakeholders ceases to exist. The incompatibilities that sometimes exist between stakeholders force managers to reflect deeply on the company's mission and the business's specific objectives. It also forces them to adopt a strategy that includes stakeholders in creating

solutions and analyses that allow them to overcome the technocratic vision of the complex problems of sustainability (Schaltegger et al., 2019). Thus, new perspectives are needed in the treatment of human resources management, organisational culture and education so that the involvement of managers in collaboration with stakeholders is effective, serious and constructive. (Schaltegger et al., 2019). The empirical results of this study contribute to the standardisation of the criteria for the election of the most appropriate ratios for the assessment of the impacts of financial sustainability on the financial performance of companies and the approximation of the sustainability criteria between management and stakeholders.

The results of this study show that the gains from operating income or capital inflows are presented in the accounting results (A. S. Chen & Lin, 2011), such as the net profit to equity ratio. Its positive influence on firms' performance is observable in the results of all models, that is, in the models of small, medium and large firms, which reinforces previous findings. For H. Y. Yu et al. (2022), the net profit to equity ratio predicts future earnings. Araújo and Machado (2018) assume that this ratio can be strategically used because it can be part of the explanation of stock returns. This positive influence of the net profit to equity ratio is evident in firms' strategy architecture achieving stock returns (Shanyu, 2022).

The results also highlight that the total assets to current assets ratio positively influences the performance of small, medium and large firms, following the results of numerous other asset structure studies (Reyhani, 2012; Santosa, 2020; Vo, 2017). Assets, the resources that firms own and control, have a preponderant influence on firms' sustainable profitability (Shi, 2021). In addition, an efficient stock management improvement is positively related to return on assets (Golas, 2020).

In the case of assets turnover ratio, there is also a positive influence on the performance of companies of all dimensions studied, reinforcing previous results from other studies. This ratio reflects the efficiency with which revenue is created from assets (Xu et al., 2022, and can significantly predict return on assets (Lin et al., 2021). Previous studies found a positive relationship between asset turnover ratio and return on assets (Chakrabarti & Chakrabarti, 2019; L. Li et al., 2018; Nurlaela et al., 2019). And the ability of assets turnover to predict profitability (Fairfield & Yohn, 2001).

When the study focuses on the current ratio, it is found that there is a difference in their behaviour. That is, there is no unanimity because only in medium and large companies the influence of this ratio on company performance is positive. This may represent that small firms have a different degree of transformation of current assets into cash than medium-sized and large firms. This denotes different degrees of short-term liquidity (Batrancea, 2021). This means that small firms may have higher business

risk than other firms, which explains the absence of a positive relationship between working capital and profitability (S. Ding et al., 2013; Kieschnick et al., 2013). On the other hand, medium and large firms can be assumed to have better liquidity than small firms. Improving liquidity allows profitability management (Adekola et al., 2017; Enqvist et al., 2014). Several studies have found a positive relationship between the current ratio and the performance of firms measured by return on assets (Akgun & Karatas, 2021; N. Altaf, 2020; Sharma & Kumar, 2011; Yousaf & Bris, 2021).

Finally, the total liabilities to total assets ratio indicates that its influence on the performance of small, medium and large firms is positive. Previously results with positive and negative influences have been found (F. M. Chang et al., 2014). But the recent study by Nguyen & Nguyen (2020) argues that an increase in this ratio implies a decline in the performance of firms. A high value of this ratio indicates solvency problems and may indicate that enterprises may show signs of financial distress (Kliestik et al., 2020). It and may be associated with low chances of survival (Cochran et al., 2006). Therefore, this ratio is a good predictor of bankruptcy. (Kasgari et al., 2013; S.-S. Park & Hancer, 2012; M. Smith & Alvarez, 2022; Traczynski, 2017). The negative correlation between capital structure and firm performance (Rajan & Zingales, 1995) can be explained by the existence of underinvestment-related debt (Myers, 1977).

According to these results, it can be assumed that the influence of the economic dimension of triple bottom line on firms' financial performance is positive in almost all the analyses carried out. Only the current ratio of small companies does not exert this positivity. And that the ratios used for the performance evaluation are adequate and deserve special attention from the managers and stakeholders. Thus, the alliance between the stakeholder's theory and the economic dimension of triple bottom line may be facilitator of an improvement in the financial performance of companies.

4.5.2 Theoretical implications

This study contributed to the stakeholder theory by demonstrating that sustainability performance measurement and assessment enables the provision of information to stakeholders that enhance companies' value creation and continuity. In this way, sustainable strategic management can provide stakeholders with interesting financial returns. They also contribute to aligning economic and sustainable accounting with stakeholder objectives. These interests may sometimes be opposed, thanks to the very nature of each stakeholder, their wishes and ambitions for the companies and their environment. Furthermore, this study contributes to deepening the knowledge and

application of triple bottom line, demonstrating that applying the basic principles of the economic dimension of triple bottom line can allow companies to achieve financial sustainability, creating value and ensuring the continuity of companies. Finally, the valorisation, evaluation and motorisation of accounting indicators as a way to achieve financial sustainability extends companies' theoretical principles of strategic management. It should be incorporated into their business model.

4.5.3 Practical implications

Some practical implications can be inferred from this study. First, the much-needed overcoming of the technocratic view of complex sustainability issues forces managers to think about them more holistically and constructively including all stakeholders in the design of business strategies. Human resource management and organisational culture should be adapted to disclose information concerning the influence of triple bottom line's economic dimension on companies' financial performance. This disclosure should be made taking into account the characteristics of each of the stakeholders. And is an integral and fundamental part of the definition of the company's strategy and, as such, of the business model. Secondly, companies need to define a sustainable financial management control system, systematically collecting data of an accounting nature and monitoring them to define a sustainable financial strategy based on indicators for the creation of value and the continuity of the company. Companies should adopt digital technologies such as big data analytics for a more powerful information system. An efficient information system will support companies' financial decisions at the strategic level (investments) and the operational level (operating activity). In addition, it will allow companies to ensure a sustainable competitive advantage and to have financial information that allows them to anticipate situations that may compromise future value creation and, to the limit, their survival. Thirdly, in training managers, the critical thinking of assembling a strategy and objectives and solving network problems, while integrated into a complex business environment, should be fostered by linking managers to all stakeholders. Finally, policymakers can foster financial sustainability by rewarding companies with balanced and favourable accounting indicators of value creation and continuity. This reward could take the form of non-refundable subsidies, subsidised financing interest rates and exemptions from certain fees and commissions.

4.5.4 Limitations and future lines of research

The fruitful contributions of this study do not exclude its limitations. There may be reverse causation and other factors that were not observed but may simultaneously affect the economic dimension of triple bottom line and the financial performance of firms. This possible causal relationship should be investigated in future studies. Also, the choice of measures of the economic dimension of triple bottom line and the financial performance of firms may have influenced the results. As such, further study of the measures of assessing financial sustainability, the economic dimension of triple bottom line and the influence they have on the financial performance of firms should be undertaken to identify which measures are most appropriate robustly. There is also a need to study how these forces relate to each other and sustainable practices. The study of stakeholders' expectations can guide the presentation of accounting information.

4.6 Conclusions

This study aims to analyse the influence of the economic dimension of triple bottom line on firms' financial performance. The economic dimension of triple bottom line consists of several functions. This study focuses on financial sustainability, whose purpose is the creation of value and survival of the company in the long term. It represents the balance between return and risk without jeopardising the gains of the various stakeholders. This study is one of the first to be based on analytical techniques with accounting data to assess the relationship of the economic dimension of triple bottom line with the financial performance of companies as a way for companies to achieve financial sustainability. The results show that triple bottom line 's economic dimension can positively influence financial performance. It is also found that the choice of ratios for assessing the influence of the economic dimension of triple bottom line on the performance of companies is appropriate. The results also contribute to the standardisation of the criteria for the election of the most appropriate ratios for assessing the impacts of financial sustainability on the financial performance of companies and for the approximation of sustainability criteria between management and stakeholders. Those responsible for designing and implementing corporate strategy should pay special attention to them. The joint consideration of the stakeholder theory and the economic dimension of triple bottom line can allow the achievement of financial sustainability.

CHAPTER 5 – A META-REGRESSION ANALYSIS OF ENVIRONMENTAL SUSTAINABILITY PRACTICES AND FIRM PERFORMANCE

Abstract:

The growing concern with environmental protection has transformed companies' environmental responsibility into a tactical strategy to increase their competitiveness. The influence of environmental sustainability practices on companies' performance is on the agenda, and it is not consensual. This study intends to analyse the impact of the adoption of sustainable practices on the performance of companies. The heterogeneous results of 96 studies (taken from the Web of Science, from which data on 339 effects were collected) were synthesized using meta-regression analyses. Unlike previous studies that consider performance a one-dimensional construct, this study takes an original approach to performance. Effects were analysed on five different performance measures: (i) the overall performance, (ii) the accounting-based, (iii) the market-based, (iv) the economic-based and (v) the operational-based firm performance. Indirect effects were also explored. Environmental sustainability practices positively influence the five performance measures, even if environmental preservation is not the only motivation for their implementation. The study reinforces the idea that it is profitable for companies to be green. The environmental pressures of stakeholders must be seen as opportunities and contribute to improving the multiple aspects of competitiveness. To accommodate environmental concerns, business ethics must be updated.

Keywords: Triple bottom line, environmental dimension, environmental sustainability practices, performance, environmental practices; meta-regression.

5.1 Introduction

The escalating public concern for preserving and enhancing the natural environment has transformed environmental responsibility into a fresh tactical approach to improve the competitiveness of organizations (Ammer et al., 2020; Jorge et al., 2015). Every day, the importance of implementing eco-friendly business methods grows (D'Souza et al., 2022; Mitra, 2022), and companies are under increasing pressure to communicate their progress towards sustainable development (Subramaniam et al., 2023). Pressures to innovate play a key role in the firm's survival and contribute to sustainability and cleaner production processes (Paruzel et al., 2023). However, for a long time, there have been opposing views on environmental protection and economic development (B. Peng et al., 2020). The basis of the performance of all companies is the adoption of a management strategy that can help growth, the efficient use of resources and the incorporation of steps that lead companies to sustainability (Y. Ali et al., 2021). The performance of companies must be evaluated in light of the triple bottom line (Elkington, 1997, 2006). Performance evaluation can be either objective or subjective, and it can consider both financial and non-financial elements (Kanzari et al., 2022). Accounting-based metrics are ratios that represent the most common standard measures of financial performance found in research (Brealey et al., 2020). In addition to accounting metrics, numerous studies assess companies' performance based on a market-based perspective (such as Tobin's Q) (Gull et al., 2022; H. U. Rahman et al., 2021, 2023). Some studies examining the effects of companies' environmental performance on accounting or market-based performance (Iwata & Okada, 2011; Lewandowski, 2017; Palea & Santhià, 2022). The research by Annunziata et al. (2018) reveals a clear connection between the implementation of environmental responsibility within organizations and economic performance. Which is a cost-effective measure (S. R. Park et al., 2022). Due to their significant impact, it is imperative to investigate the influence of green practices on operational performance (Salandri et al., 2022). This relationship has already identified positive outcomes (De Giovanni, 2022; Santander et al., 2020).

The role of the environmental dimension of triple bottom line needs to be further explored (Nogueira et al., 2022). The connection between adopting environmental sustainability practices and companies' performance is still unclear (Agyabeng-Mensah, Ahenkorah, Afum, et al., 2020; Agyabeng-Mensah, Ahenkorah, Afum & Owusu, 2020; E. L. Li et al., 2017). The previous literature on the nexus between environmental sustainability and performance is scarce (M. Khan et al., 2021). Just as there are few studies that examine complementary or alternative measures of performance (Barth et

al., 2023; J. Lee & Kwon, 2019). The expansion of measures of firm performance is required (Certo et al., 2022; Le & Ikram, 2022; Vito et al., 2022). The relationship between environmental sustainability practices and organizational performance still needs to be studied (Malesios et al., 2021). It is necessary to maintain the debate on the difficulties of measuring the sustainable performance of companies (Nogueira et al., 2023). Xue et al. (2019) argue most previously published studies treat performance as a unidimensional construct. But this construct is complex and encompasses several items in its assessment (Agyabeng-Mensah, Ahenkorah, Afum & Owusu, 2020). There have been studies that have examined the relationship between environmental sustainability practices and certain performance measures. However, there is still a clear gap. The current research doesn't settle whether it's worth going green (van Emous et al., 2021). However, this study provides a thorough and holistic examination. It considers environmental sustainability practices (as a whole) and analyses their correlation with a wide range of measures of companies' performance. In this context, stakeholder theory is particularly suitable, as it allows companies to be pressured by stakeholders to adopt actions that will impact their performance (Le & Ikram, 2022). As well as institutional theory, which has been widely used to justify the adoption of organizational practices by companies (Arranz & Arroyabe, 2023). And contingency theory, explains that a company's strategies, procedures, and conduct will change based on the surrounding environment (Williams et al., 2017).

Business practices are subject not only to legal constraints but also to increasing scrutiny, and it becomes imperative to understand how sustainability environmental practices influence the performance of companies. In this context, the present study intends to explore the influence of the environmental dimension of triple bottom line and environmental sustainability practices on the performance of companies in their various measures. Thus, the research questions of this study are: (i) What is the influence of the environmental dimension of triple bottom line on the performance of companies?; and (ii) Environmental sustainability practices exert the same kind of influence on different measures of company performance: (a) the overall performance, (b) the accounting based, (c) the market-based, (d) the economic-based and (e) the operational based firm performance?. A meta-regression analysis was conducted to compare the results of previous studies examining the relationship between environmental sustainability practices and business performance.

Realizing whether it's worth it to be green is equally crucial as comprehending whether the behaviour of environmental sustainability practices has the same path in the various performance measures. Therefore, the objective of this study is to explore the influence of sustainable practices on the performance of companies. A new

approach was taken to examine how this influence affects different performance measures. By studying the indirect effects, it is also important to deepen our understanding of the synergies between different performance measures.

This study shows that environmental sustainability, in addition to being mandatory for the survival of the planet, is also a profitable business strategy, having defined a set of practical implications for companies and policymakers. It was found that environmental sustainability practices positively influence five different performance measures. Examining indirect effects revealed that accounting performance moderates the relationship between sustainable practices and market and operational performance. Market performance serves as a moderator between sustainable practices and accounting performance. The relationship between sustainable practices and accounting performance has the operational performance as a moderator.

The present study brings three significant contributions and implications. First, it contributes to recent works on environmental sustainability practices and studies on the performance of organizations. In business strategies, it is essential to promote environmentally conscious thinking (S. S. Ali et al., 2022). Second, this study shows that environmental practices positively affect firm performance across five distinct performance metrics. This serves as evidence and attests to its originality. And responds to the background discussion that led to this analysis. Since it is profitable to be green, measures that promote environmental well-being must be implemented. Implementing this strategy necessitates connecting with the corporate reputation (Kwon et al., 2021; Z. Ullah, 2021). To succeed, a long-term strategic plan for sustainability innovation is imperative (X. H. Peng & Zhang, 2022). The third contribution of the study pertains to the observation that, despite the exertion of decisive pressure by stakeholders, management decisions are primarily influenced by coercive forces, mainly in the form of regulations and compliance with regulations (Luo & Tang, 2016). The government's behaviour and the impact of its policies require special attention.

The paper outline is presented as follows. The previous literature is discussed in the second section, and the hypothesis development is presented. The third section provides an overview of the materials, methods, and literature coding. The results are in the fourth section. The fifth section presents the discussion and the implications of this analysis. In the sixth and last sections, the conclusions are presented.

5.2 Theoretical background and proposed hypotheses

5.2.1 Stakeholder theory, institutional theory and contingency theory

When we look into the issues that relate to corporate sustainability and company performance, stakeholder theory is the prevailing theory (N. Hussain, Rigoni, & Cavezzali, 2018). It is particularly suitable when stakeholders pressure forces companies to adopt strategies impacting their performance (Le and Ikram, 2022). This theory defends the existence of a group of people interested in the functioning and results of organizations, whose support is vital for their survival (E. Freeman, 1984). The pressures exerted by these stakeholders are crucial for the adoption or not of sustainable management practices (González-Benito and González-Benito, 2006; Haleem et al., 2022; Wolf, 2014; Q. Zhu et al., 2005). Sustainability practices impact the formation of value in organizations and cannot be ignored (Lartey et al., 2021). They require contributions from multiple stakeholders (Frempong et al., 2021). The positivity of this impact is amplified with higher stakeholder integration levels (Danso et al., 2020; M. Khan et al., 2021). In addition, successful environmental practices strengthen the organization's relationship with all stakeholders (Cankaya and Sezen, 2019).

Companies' adoption of organizational practices has often been explained using institutional theory (Arranz and Arroyabe, 2023; DiMaggio and Powell, 1983; Scott, 2005). That suggests that three sources of external pressure led companies to adopt similar practices (DiMaggio and Powell, 1983; Subramaniam et al., 2023). Therefore, there is a relationship between stakeholder theory and institutional theory. Since stakeholders implicitly influence the institutions (D'Souza et al., 2022). According to institutional theory, the ability of the social and environmental environment around organizations to affect the development of business structures is stronger than market pressures (Ebrahimi and Koh, 2021). Regulations, norms, and independent organizations that influence the sustainable narrative and condition the sustainable behaviour of companies are examples of institutional situations that mediate the relationship between economic constraints and corporate behaviour (Campbell, 2007). However, understanding how institutional pressures make organizations embrace sustainable behaviour and respect rules is still incomplete (Ebrahimi and Koh, 2021).

According to contingency theory, a company's plans, organizes and behaves will alter based on the surrounding environment (Lawrence and Lorsch, 1967; Thompson, 2003). The underlying assumption is that the adaptation and survival of an organization can be accomplished through multiple means (Williams et al., 2017). This theory departed from the conventional paradigm of having an optimal way to manage

organizations (Tekic et al., 2023), realizing that there was a direct link between the external environment, organizational structure, and business outcome for most organizations (Williams et al., 2017). Contingency theory emphasizes the importance of the situation and context as crucial factors influencing decisions on ethical and public relations strategies (Shin, 2023). In corporate governance, the contingency theory provides a theoretical basis for the consequences of varying degrees of environmental turbulence (Heirati et al., 2016). The impact of environmental turbulence can be divided into two forces, market and technology turbulence, which will play an essential role in the formation of disruptive innovation (C. Wang et al., 2022). Thus, it can be argued that the efficacy of enacted strategies and practices that organisations implement will always depend on their capacity to adapt.

5.2.2 Environmental sustainability practices and overall performance

To understand what the companies' goals are and how they achieved them, it is essential to measure performance (Pereira et al., 2023). Companies should consider investing in eco-friendly and cost-effective initiatives to earn profit and sustainability (Fok et al., 2023). The research that focuses on the influences exercised by the orientation towards environmental sustainability on the results of the companies has had growing evidence (Adomako et al., 2019). Therefore, it is expected that the performance achieved with environmental efforts will be a weapon both in the use of assets and in maintaining companies' strategic position (S. R. Park et al., 2022). Since it reduces energy and material consumption, improves the connection with stakeholders, reduces costs and increases product quality (Cankaya and Sezen, 2019). Even though some studies claim a negative relationship between environmental sustainability and company performance (Y. Ali et al., 2021), developing capabilities related to environmental actions positively affect a company's performance (Dangelico and Pontrandolfo, 2015). When hotels implement environmental sustainability practices, their overall performance is positively affected (Langgat et al., 2023). Developing strategies to enhance all aspects of the organization is crucial in boosting overall performance (Wongwilai et al., 2022). These reflections lead to the formulation of the following hypothesis:

H1: The companies' environmental sustainability practices are positively associated with the company's overall performance.

5.2.3 Environmental sustainability practices and accounting-based firm performance

Environmental sustainability can improve companies' financial performance (M. Khan et al., 2021). Corporate environmental innovativeness and adaptability (Wong, 2013), business model innovation (Al-Nimer et al., 2021) and green innovation (Xue et al., 2019) also contribute to improved financial performance. Like sustainability innovation (Le and Ikram, 2022), operational environmental sustainability (Benitez-Amado et al., 2015) and the proactive adoption of environmental management practices (O'Donohue and Torugsa, 2016). Small businesses adopt sustainable models to maintain sustainability and improve financial literacy (X. L: Tang, 2022). Despite the results obtained by Knight et al. (2019) evidence of a negative relationship between companies' environmental behaviour and financial performance, most studies demonstrate that orientation towards environmental sustainability positively influences performance results (Danso et al., 2019). The impact of business activities can influence performance based on accounting ratios (Golovkova et al., 2019). These considerations lead to the formulation of the following hypotheses:

H2: Companies' environmental sustainability practices are positively associated with accounting-based firm performance.

H2: The relation between environmental sustainability practices and accounting-based firm performance can be positively influenced by: b) market-based firm performance; c) economic-based firm performance; and d) operational-based firm performance.

5.2.4 Environmental sustainability practices and market-based firm performance

In the current competitive market, sustainability is one of the most relevant strategic components (Kwon et al., 2021; J. Lee and Kwon, 2019). The growing search for sustainability can provide companies, not only with the ability to avoid competition from rivals and criticism from consumers, but also to achieve their positioning as leaders in environmental issues (J. Lee and Kwon, 2019). Therefore, implementing ecological practices changes companies' business models (J. Lee and Kwon, 2019), sustains growth and market gains (Kwon et al., 2021), and, in the long term, positively influences performance (Agyabeng-Mensah, Afum, and Ahenkorah 2020). But environmental improvements may not be perceptible in products or services, which requires an investment to be made in disseminating ecological attributes and makes it difficult to deduce, from the literature, the possibility of actually being implemented

(Grekova et al., 2016). The activities occurring within organisations that potentially impact market performance are numerous (Eklof et al., 2020; Fornell et al., 2016). Thus, the following hypotheses were formulated:

H3: Companies' environmental sustainability practices positively affect market-based firm performance.

H3: The relation between environmental sustainability practices and market-based firm performance can be positively influenced by: a) accounting-based firm performance; c) economic-based firm performance; and d) operational-based firm performance.

5.2.5 Environmental sustainability practices and economic-based firm performance

Economic performance is enhanced by green practices (S. A. R. Khan and Yu, 2021), environmental proactivity (Barba-Sánchez and Atienza-Sahuquillo, 2016; Cankaya and Sezen, 2019), eco-friendly business practices (Sun and Wang, 2022) and orientation towards environmental sustainability (Roxas et al., 2017). In the literature, the relationships between the superior performance of the company and the implementation of green purchasing have already been identified (B. Altaf et al., 2020; S. R. Park et al., 2022). As was the relationship between that same performance and direct and indirect impacts of sustainable supply chain management practices (C. C. Zhu et al., 2022). Environmental practices can positively impact corporate sustainability performance (Cankaya and Sezen, 2019). And improving these practices leads to an improvement in performance (Russo et al., 2021). Implementing certain business activities can impact the organizations' economic performance (Naranjo Tuesta et al., 2021). These considerations led to the following hypotheses:

H4: Companies' environmental sustainability practices are positively associated with economic-based firm performance.

H4: The relation between environmental sustainability practices and economic-based firm performance can be positively influenced by: a) accounting-based firm performance; b) market-based firm performance; and d) operational-based firm performance.

5.2.6 Environmental sustainability practices and operational-based firm performance

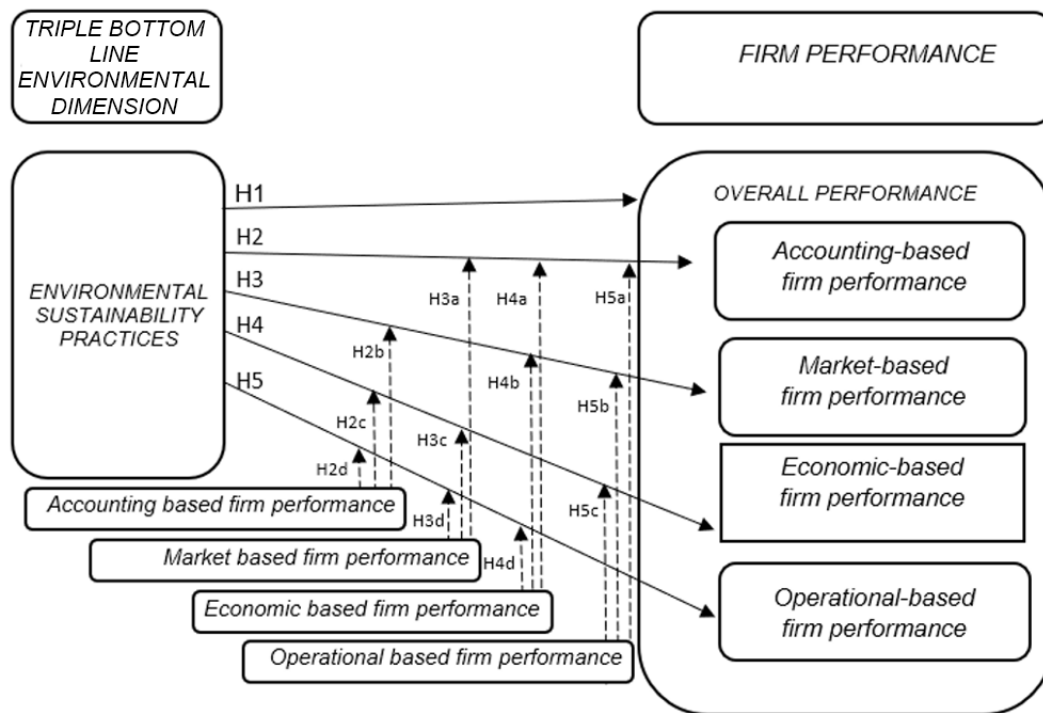
Corporate environmental sustainability plays an essential role in the operational performance of companies (Dadhich and Hiran, 2022). Capabilities to develop environmental collaborations and to implement environmental actions affect the firm's image (Chuang and Huang, 2018; Dangelico and Pontrandolfo, 2015). Conserving resources and reducing waste improves business profitability and competitiveness (Sakshi et al., 2020). Management's environmental concern significantly affects the link between green innovation and company performance dimensions (Xue et al., 2019). Environmental efforts are more than mere public relations strategies and positively influence business performance (S. R. Park et al., 2022). Sustainability innovation can lead to competitive advantages that enhance the company's performance (Le and Ikram, 2022). Operating performance is positively influenced by the application of environmental sustainability practices (Agyabeng-Mensah, Ahenkorah, Afum & Owusu, 2020; M. Feng et al., 2018). The strategies ought to be devised to enhance the organisations' operational performance, resulting in a rise in overall performance (Dieste et al., 2021; Wongwilai et al., 2022). This leads to the formulation of the following hypotheses:

H5: Companies' environmental sustainability practices are positively associated with operational-based firm performance.

H5: The relation between environmental sustainability practices and operational-based firm performance can be positively influenced by: a) accounting-based firm performance; b) market-based firm performance; and c) economic-based firm performance.

In Figure 11 are presented the research model and the formulated hypotheses.

Figure 11 - The research model and the hypotheses formulated.



Source: Own elaboration.

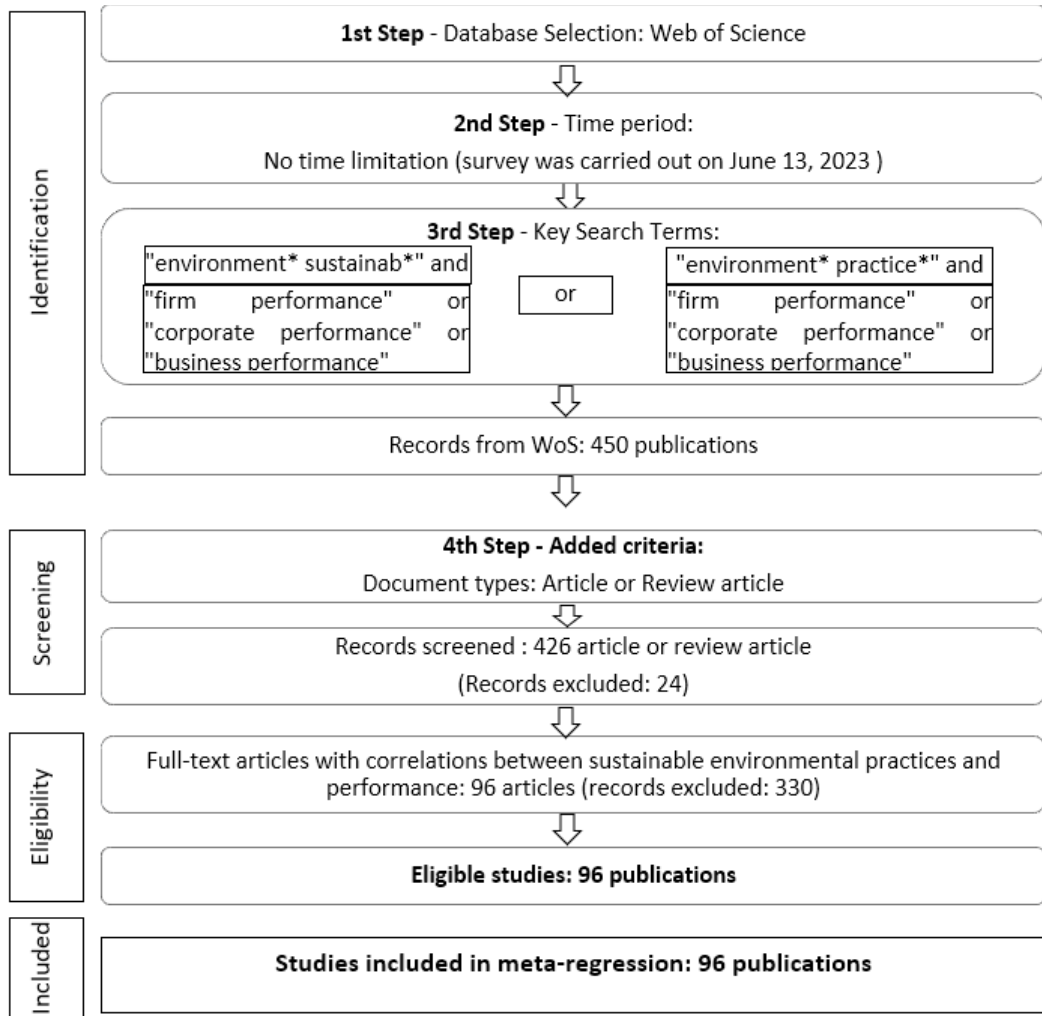
5.3 Materials and methods

When attempting to integrate the results of multiple studies to build a model that explores nonuniformities and trends in the baseline research, meta-analysis provides a powerful tool (Morris, 2023). The meta-analysis, being a scientific quantitative synthesis, helps to establish evidence-based practices and contributes to the resolution of research with results that appear to be contradictory (Fang and Zhang, 2018; Gurevitch et al., 2018). This methodology has become increasingly relevant (Dzwigol, 2021; Gurevitch et al., 2018). Meta-analytical techniques are essential to consolidate the field's state of knowledge and to understand past inconclusive results (Post et al., 2020). Its use has been popularized by its increasing use in several studies (eg, Cui and Martins, 2021; C. Wang et al., 2022; Dzwigol, 2021; Hang et al., 2019; Qorri et al., 2021; Q. Wang et al., 2022; V. Z. Chen et al., 2022). It integrates an evidence-oriented approach to research (Dzwigol, 2021). The meta-analysis, using as a basis the correlation coefficient of each of the empirical studies in the sample, can calculate the population effect size reflecting the generalized correlation between variables and pooled sampled studies' mean effect size (Q. Wang et al., 2022).

5.3.1 Sample selection process and data collection

For the selection of studies for the meta-regression, four steps were performed. The first step was the choice of the Web of Science Core Collection for sample identification and collection. This database was chosen because it is considered a key source of information in the field of social sciences (Z. Liu et al., 2015), and its data are subject to a care, selection and organization process (Franceschini et al., 2016). The extraction was performed on 13.06.2023, without any time limitation. The second stage was the identification of studies after applying the search keywords: "environment* sustainab*" and "firm performance" or "corporate performance" or "business performance"; or "environment* practice*" and "firm performance" or "corporate performance" or "business performance". The investigation began with thoroughly examining the studies related to environmental sustainability practices. This process reveals the cadence of keywords used and allows the identification of the most appropriate keywords for this research. Sample extraction was performed following the steps of several authors. The search was performed by topic (title abstract and keywords) (Lopes, Sousa et al.2022; Lopes, Laurett et al. 2021). In the third stage, studies that were not articles or reviews were excluded (Lopes, Gomes et al., 2022; Lopes, Gomes & Rodrigues 2022). In the fourth and last stage, studies whose analysis did not expose the correlations between the constructs on which the study focuses were excluded (Abbas and Ali, 2021; Ozkan and Balli, 2023). That is the correlations between sustainable environmental practices and performance. Thus, in the final sample, there are 96 articles. The steps taken to extract the sample are shown in Figure 12.

Figure 12 - Sample extraction.



Source: Own elaboration

5.3.2 Literature coding

To counter the different scales used in the various studies, the selection of the type of effect size fell on the correlation (a measure of unbiased estimator according to Govindan et al., 2020) to explore relationships between variables. Thus, of the 96 studies gathered, 339 effects were obtained. These effects are based on a sample of 138,371 sample elements from worldwide. The articles that constitute the sample were coded using basic information, sample size, effect size and correlated variables. To clarify the constructs that served as the guiding thread for the codification of the study variables that involve the theme of sustainable environmental practices and the performance of companies, their description is presented in Table 11.

Table 11 - Description of constructs.

Construct	Description	Based in:
Environmental sustainability practices	All actions and policies of a company developed with the aim of promoting environmental sustainability. Eg: eco design; emission reduction – buyer level; emissions score; energy conservation; green distribution; green transportation; remanufacturing and recycling; resource conservation; resource use score; supply chain ecocentricity and sustainable supply partnership.	Arora and De, 2020 Frempong et al., 2021
Firm performance	A company's ability to achieve its goals.	Le and Ikram, 2022
Accounting based firm Performance	Based on measures derived from accounting data and representing financial parameters, such as return on assets, return on equity, profitability and net profit margin.	X. L. Tang, 2022
Market based firm Performance	It is based on instruments that assess wealth for shareholders, such as the market value added and Tobin Q.	J. Lee and Kwon, 2019 Lartey et al., 2021
Economic based firm performance	It is based on the ability of companies to reduce costs related to their activities, such as energy and water consumption, purchase of materials and the creation of waste.	Sun and Wang, 2022 Hull et al., 2021
Operational based firm performance	It is constituted by measures of organizational effectiveness and efficiency. Such as responsiveness to time of delivery, customer satisfaction, product quality development, capacity utilization and competitive advantage, in comparison to the industry average.	Xue et al., 2019 Le & Ikram, 2022

Source: Own elaboration.

In this study, environmental sustainability practices are understood as all actions and policies that a company develops to preserve the environment, even if this is not the only motivation for putting them into practice. Examples include but are not limited to: circular design; eco design; emission reduction – buyer level; emission reduction – supplier level; emissions score; energy conservation; green distribution; green information system; green innovation capabilities; green manufacturing; green marketing strategy; green procurement; green supply chain management practices; green transportation; reduce, reuse, and recycle; remanufacturing and recycling; resource conservation; resource reduction – buyer level; resource reduction – supplier level; resource use score; supply chain ecocentricity and sustainable supply partnership. Regarding firm performance, and despite its measurement as a critical issue in management research, there is still no consensus on assessing it in empirical research (Rosenbusch et al., 2011). But it can easily be agreed that a firm's performance captures its ability to achieve goals (Le & Ikram, 2022). Accounting-based

firm performance is understood as performance based on accounting measures or the perceptions of these measures. Market-based firm performance is the one that investigates the return to the shareholders. Economic-based firm performance reflects the ability of companies to reduce costs. Finally, operational-based firm performance mirrors a measure of performance that focuses on organizational efficiency and effectiveness.

5.4 Results

5.4.1 Results of the meta-regression

The meta-regression was performed using Comprehensive Meta-Analysis software (from Biostat, Englewood, United States of America). The Comprehensive Meta-Analysis can be used regardless of the number of studies (Borenstein et al., 2022). The results are presented in Table 12. Respecting the data that were obtained in the sample, five models were analysed. The first measures the overall effect of environmental practices on business performance, which is the aggregation of data from all performance measures that make up the study. Measuring the effect of environmental practices on financial performance is presented in model two. In model three, we see the measurement of the effect on market performance, the smallest group, as most studies focus on small and medium-sized companies. Model four presents the results of measuring the effects of environmental practices on the economic performance of companies, and model five, on the operational performance of companies.

Table 12 - Results of random-effects models.

		Random-effect models				
		Model 1	Model 2	Model 3	Model 4	Model 5
		<i>Overall effect on performance</i>	<i>Effect on accounting performance</i>	<i>Effect on market performance</i>	<i>Effect on economic performance</i>	<i>Effect on operational performance</i>
<i>n</i>		138,371	62,591	21,550	21,589	32,641
<i>K</i>		339	99	32	80	128
<i>r</i>		0.310	0.184	0.053	0.472	0.358
95% Confidence Interval	lower limit	0.280	0.138	-0.013	0.429	0.318
	upper limit	0.339	0.230	0.119	0.512	0.397
<i>Z</i>		19.204	7.663	1.566	18.681	16.119
<i>P</i>		0.000	0.000	0.011	0.000	0.000
<i>Q</i>		12380.306	3253.117	395.406	646.987	1233.529
<i>I</i>² (%)		97.270	96.988	95.209	93.596	94.085
Prediction interval		-0.260 to 0.720	-0.264 to 0.567	-0.307 to 0.400	0.043 to 0.754	-0.125 to 0.704

* Notes: *n* is the total sample size; *K* is the total effects; *r* is the mean effect size; *Z* and *P* are statistics to check the significance; *Q* and *I*² are values to determine the heterogeneity.

Source: Own elaboration.

Random effects were used in the analysis model as it is most suitable for studies where respondents and measurements vary, thus allowing results to be generalized to comparable studies (Borenstein et al., 2009; Fang & Zhang, 2018). Thus, the mean distribution of effects was estimated, as each study provides information about a different effect size (Borenstein et al., 2009, 2010). The Pearson correlation coefficient, *r*, is the effect size.

In model 1, an analysis of the total number of studies is presented, that is, 94 studies representing the 339 effects and the sample of 138,371, which examines the correlation between sustainability environmental practices and overall performance. The mean effect size is 0.310, which indicates that, on average, companies with a higher level of environmental practices tend to have a higher level of performance. The 95% confidence interval for this correlation is between 0.280 and 0.339. The *Z* value is 19.204 with a *p*-value < 0.001. Regarding heterogeneity, *Q* has a value of 12380.306, which implies a rejection of the null hypothesis (that the true effect size is identical in all the studies) of this model. *I*² has a value of 97.270%, representing 97.270% of the variance in observed effects reflects variance in true effects rather than sampling error (Linden & Hönekopp, 2021). Which quantitatively confirms the heterogeneity in our sample. The true correlation between environmental sustainability practices and overall performance varies from one population to the next, and in any single population, it

likely falls in the range of the prediction interval, -0.260 to 0.720. Thus, hypothesis H1 is confirmed.

In turn, model 2 presents the study with 99 effects from a total sample of 62,591, which observes the correlation between sustainability environmental practices and accounting performance. The mean value effect size is 0.184, and its confidence interval lies between 0.138 and 0.230. This indicates that environmental sustainability practices are agents that drive the financial performance of companies. With p-value < 0.001, the Z value is 7.663. The Q test for heterogeneity has a Q value of 3253.117. The value for I^2 is 96.988%. The heterogeneity is confirmed. The prediction range is from -0.264 to 0.567. These results allow confirmation of hypothesis H2.

Model 3, on the other hand, shows the investigation carried out on the correlation between environmental sustainability practices and market performance. It has 32 effects, representing a sample of 21,550. The mean effect size has a value of 0.053 with a confidence interval between -0.013 and 0.119. It supports the idea that environmental sustainability practices positively influence performance based on market measures. The Z value, with a p-value of 0.011, is 1.566. The value of Q is 395.406, and that of I^2 is 95.209%. Regarding the prediction interval, it lies between -0.307 and 0.400. In this way, hypothesis H3 is accepted.

Model 4 shows that the mean effect size between environmental sustainability practices and economic performance is 0.472, with a confidence interval between 0.429 and 0.512. The sample of this model is 21,589 to 80 effects. The model has a Z value of 18.681 with a p-value < 0.001. Regarding heterogeneity, Q has a value of 646.987, and I^2 has a value of 93.596%. The prediction interval is between 0.043 and 0.754 and it is expected that the results will be within these limits even if the sample is changed. This makes it possible to accept hypothesis H4.

Finally, model 5 presents the analysis of the effect of environmental sustainability practices on operational performance. The total sample is 32,641, and the number of effects analysed is 128. The mean effect size is 0.358, and the confidence interval is between 0.318 and 0.397. Here, too, it can be seen that a higher level of implementation of environmental sustainability practices corresponds to a higher level of performance in this model. The Z value is 16.119 with a p-value < 0.001. Regarding heterogeneity, Q has a value of 1233.529, and the value of I^2 is 94.085%. The prediction range is located between -0.125 and 0.704. Also here, hypothesis H5 is accepted.

The results of the heterogeneity tests are shown in Table 12. All the Q-statistics were significant at $p < 0.001$, indicating that correlations are heterogeneous. Furthermore, all I^2 statistics exceeded 75% (94-97%), revealing a substantial variation

among the environmental sustainability practices research studies. It is, therefore, justified to investigate moderator variables.

5.4.2 Results of the moderation analysis

An analysis was conducted to determine the indirect effects of each performance measure on the paths between environmental sustainability practices and the various performance measures. The results of the moderator analysis are presented in Table 13.

Table 13 - Results of the moderation analysis.

Moderator	Path	ESP → AP	ESP → MP	ESP → EP	ESP → OP
		Model 3a	Model 4a	Model 5a	
Accounting Based firm performance	n	23669	2320	8515	
	K	35	10	36	
	r	0.460	0.236	0.308	
	p-value	0.006	0.340	0.007	
	Z-value	2.76	0.95	2.68	
	Q -statistics	306.28	49.56	202.56	
	P heterogeneity)	0.000	0.000	0.000	
		Model 2b	Model 4b	Model 5b	
Market Based firm performance	n	23669	*	**	
	K	35			
	r	0.243			
	p-value	0.063			
	Z-value	1.86			
	Q -statistics	393.49			
	P heterogeneity)	0.000			
		Model 2c	Model 3c	Model 5c	
Economic Based firm performance	n	2320	**	8948	
	K	10		37	
	r	0.5878		0.082	
	p-value	0.367		0.666	
	Z-value	0.90		0.43	
	Q -statistics	129.80		471.72	
	P heterogeneity)	0.000		0.000	
		Model 2d	Model 3d	Model 4d	
Operational based firm performance	n	8515	*	8948	
	K	36		37	
	r	0.577		0.042	
	p-value	0.017		0.841	
	Z-value	2.38		0.20	
	Q -statistics	717.08		519.49	
	P heterogeneity)	0.000		0.000	

Notes: n is the total sample size; K is the total effects; r is the mean effect size; ESP = environmental sustainability practices; AP = accounting based firm performance; MP = market based firm performance; EP = economic based firm performance; and OP = operational based firm performance. * The studies do not provide data that could be collected for analysis and ** the studies do not provide sufficient data for analysis, as only three effects are reported.

Source. Own elaboration.

The analysis of the indirect effect of market-based firm performance on paths ESP – EP (4b), ESP – OP (5b); economic-based firm performance on path ESP-MP (3c); and operational-based firm performance on path ESP – MP (3d), was not feasible due to insufficient data. Hypotheses: H3b, H3C, H4b and H5b are rejected. The result of the indirect effects of: accounting based firm performance on path ESP - EP (4a); economic based firm performance on paths ESP – AP (2c), ESP – OP (5c); and operational based firm performance path ESP – EP (4d) are not statistically significant. Hypotheses: H4a, H2c, H5c and H4d are rejected.

Considering these constrain, there remain four hypotheses that possess statistical significance. The moderating effect of the accounting-based firm performance on the relationship between environmental sustainability practices and market performance was significant ($r= 0.460$; $p= 0.006$; $Z= 2.76$; $Q= 306.28$; $p < 0.001$). The moderating effect of the accounting based firm performance on the relationship between environmental sustainability practices and operational performance was also significant ($r= 0.308$; $p= 0.007$; $Z= 2.68$; $Q= 202.56$; $p < 0.001$). Therefore, hypotheses H3a and H5a are accepted. The moderating effect of the market-based firm performance was also significant in the relationship between environmental sustainability practices and accounting performance ($r= 0.243$; $p= 0.063$; $Z= 1.86$; $Q= 393.49$; $p < 0.001$). Thus, hypothesis H2b is accepted. Finally, the indirect effect (moderation) of operational-based firm performance on the relation between environmental sustainability practices and accounting performance was also significant ($r= 0.577$; $p= 0.017$; $Z= 2.38$; $Q= 717.08$; $p < 0.001$). Accordingly, hypothesis H2d is accepted.

5.5 Discussion and Implications

5.5.1 Discussion of results

Triple bottom line is evaluated in the light of the results of a company's activities, resulting from its intention or legal impositions, which reflect its viability, without this implying damage to social or ecological systems (P. A. C. Smith & Sharicz, 2011). Triple bottom line 's environmental dimension collaborates with environmental groups and other audit and certification bodies (Gold et al., 2013). The greater the integration of stakeholders, the greater the impact of their integration (Danso et al., 2020; M. Khan et al., 2021). Environmental practices are benefited, and receptivity to the relationship with stakeholders is positive and is reinforced with each interaction (Cankaya & Sezen, 2019). The multiplicity of ways of seeing the world has contributed to methodological

pluralism by creating diverse research methods, forms and techniques that can lead to different results (Dzwigol, 2021). Based on the need to summarize the contradictory results of the research, which focuses on the influence that environmental sustainability practices exert on the performance of companies, a meta-regression was performed.

In this study, these practices are understood as all actions and/or policies developed by companies that seek to preserve the environment. Even if the motivations that support these actions are not solely related to environmental preservation. It is important to mention that one of the benefits of practicing such efforts is the increase in stakeholder engagement (Cankaya & Sezen, 2019). Because the adoption of these practices increases the credibility of the companies (Arora & De, 2020), allows them to have a more positive image (Cankaya & Sezen, 2019) and guarantees the well-being of the different groups engaged (Paulraj et al., 2017). Relationships with stakeholders are a vital part of the business and affect the implementation of the corporate strategy, the performance of all aspects of the business activity and the establishment of the brand (Y. Yang et al., 2018). Jorge et al. (2015) found that improved engagement in environmental practices improves stakeholders' relationship. The stakeholder theory was validated with the presented findings that recognize that meeting different stakeholders' needs improves company performance. Even if doing business under the influence of stakeholders can be very challenging and requires managers to rethink the business purpose, innovate in its management and embrace more open processes (Schaltegger et al., 2019).

The results support the formulated hypotheses and affirm the positive influence of environmental sustainability practices on companies' performance. More specifically and concerning overall performance, that is, the aggregate consideration of the different measures of business performance, it appears that the influence of environmental sustainability practices is positive and results in the improvement of the results achieved by companies. This conveys to companies that implementing environmental practices is for more than just environmental protection. Because as already identified by previous studies, it also helps to improve the performance and competitiveness of companies (Ni & Sun, 2019). Green innovation has been shown significantly influence performance dimensions (Xue et al., 2019).

Regarding the relationship between environmental sustainability practices and accounting-based firm performance, it is concluded that the influence is positive, which strengthens previous findings and reinforces the need for companies to combine environmental objectives with financial objectives. This supports the results of Agyabeng-Mensah, Ahenkorah, Afum, et al. (2020) and M. Feng et al. (2018), who concluded that implementing sustainable logistics practices improves financial

performance. Accounting data and data relating to environmental practices must align and tell the same story, sharing paths, objectives and goals. A sustained improvement in environmental performance leads to better financial performance (Russo et al., 2021), especially when communicated to customers and stakeholders (Z. Ullah, 2021). Environmental performance improves return on investment (X. L. Tang, 2022). There is a link between environmental sustainability performance, corporate governance and national culture (X. H. Peng & Zhang, 2022).

The results of the relationship between environmental sustainability practices and market-based firm performance reinforce the previous notion that this relationship is positive. Thus, companies are expected to achieve gains in the market by implementing practices that strive to preserve and conserve the planet. For, as verified by Ioannidis et al. (2021), eco-friendly application strategies increase company value and market valuation. The awareness of climate change and the growing willingness of customers to pay companies aligned with the maintenance of the environment generate market opportunities (Russo et al., 2021). In theory, the environmentally sustainable improvement of processes allows differentiation with the potential to obtain market gains (Grekova et al., 2016). Pollution prevention policies positively affect companies' market value (Russo et al., 2021).

As for the relationship between environmental sustainability practices and economic-based performance, the results obtained in this study reaffirm the positive influence of this relationship. Other studies have identified that environmental knowledge is a competitive factor (Martinez-Martinez et al., 2019). The growing attention paid by companies to sustainability issues and the consequent decrease in energy consumption and pollution production not only improves sustainability but also creates a competitive advantage (Nureen et al., 2022). Reducing packaging, waste, energy, and resources improves environmental performance because companies are directly linked to economic performance and quickly embrace them (Cankaya & Sezen, 2019; Y. C. Huang et al., 2017). This is another win-win situation, where the concern for the preservation of the environment and the actions that arise from it not only led to a reduction in the destruction of natural materials but also to a reduction in costs.

Finally, it remains to analyse the results regarding the link between environmental sustainability practices and operational-based firm performance. This connection is positive and results in an increase in operational performance as environmentally sustainable practices also increase. These results reinforce previous findings that concluded that several environmental practices positively impact company performance. Examples are environmental sustainability (Sardana et al., 2020; Y. Yang et al., 2018), orientation towards sustainability (Danso et al., 2019) and eco-innovation.

(Hojnik et al., 2018). And also, the proactive environmental strategy (Benitez-Amado & Walczuch, 2012), green managerial (S. R. Park et al., 2022), innovation of low-carbon supply chain integration (X. H. Liu et al., 2020) and the management of the green supply chain management (Ajamieh et al., 2016; Ni & Sun, 2019).

Regarding the moderator analysis, the presented approach explored the influence that the different performance measures could exert on the relations between environmental sustainability practices and: accounting, market, economic and operational performance. Surprisingly, there is a lack of evidence to support the positivity of some of those relations, considering that business activities are interconnected, and their results cannot be dissociated. Accounting performance was found to positively influence the relationship between environmental sustainability practices and market performance. Boakye et al. (2020) found that companies that adopt sustainable practices enjoy a distinct advantage regarding firm financial performance that will enable a lower market risk. The financial gains that result from enhancing environmental performance, resulting from the adoption and upkeep of eco-friendly practices methods, results in a steady and sustained increase in the firm's market value over time (Russo et al., 2021). The research revealed that accounting performance positively influences the connection between environmental practices and operational performance. Activities that enhance accounting performance and are associated with reducing waste, maximizing and sustaining business success implicitly improve operational performance (Y. Ali et al., 2021). Accounting performance has always been an imperative of business strategies, closely linked to operational performance (Dieste et al., 2021).

Identifying a positive effect of market performance on the relationship between sustainable practices and accounting performance supports previous research findings. Agyabeng-Mensah, Afum, and Ahenkorah (2020) examined green practices and financial performance, concluding that the impact of market performance is favourable. This reinforces the reflection by Ioannidis et al. (2021) when companies implement activities with concerns with sustainability issues, it is important to communicate with stakeholders the promotion of their eco-friendly activities to improve their market performance and profitability extensively.

It is safe to say that the verification of the moderating role of operational performance in the relationship between sustainable practices and accounting performance was anticipated. Customer satisfaction has influenced accounting performance positively, as evidenced by a large amount of research (Golovkova et al., 2019). Because organizational effectiveness and efficiency should be reflected in financial ratios (Dieste et al., 2021). Some eco-friendly methods can potentially boost

operational efficiency, but it's often more helpful to study how they affect financial performance (Dieste et al., 2021).

Research on environmental sustainability practices' influence on company performance is conflicting (Frempong et al., 2021). As far as is known, there is currently no study that simultaneously addresses the diversity of performance metrics as this analysis does. In the meta-analysis by Fang and Zhang (2018), economic and operational performance are positively related to green supply practices chain management. The systematic review by Malesios et al. (2021) identified that when the core of the investigation falls on environmental practices, a large part of the studies analyses their relationship with economic performance. In their systematic review, Medeiros et al. (2022), concluded that most studies show a positive effect between green product innovation and financial performance results. However, several previous studies have findings bolstered by the outcomes of this research. The study conducted by Samet et al. (2022) asserts that when corporations prioritize environmental concerns, they are more likely to generate value for all stakeholders. For Khalil and Nimmanunta (2021), implementing environmental practices leads to enhanced financial performance. Companies all over the globe employ eco-friendly methods to improve financial performance (Miroshnychenko et al., 2017). During M. Yang et al. (2019) investigation into the impact of various aspects of corporate social responsibility, it was discovered that environmental factor possesses the most significant impact on firms' performance. The Burgos-Jimenez et al. (2013) study also reveals a connection between eco-friendly practices and financial performance. And Chu et al. (2018) demonstrate that green innovation positively affects financial performance. When the analysis is focused on market value, Boakye et al. (2020) have identified that several environmental practices have a positive relationship with the market-based performance measure. The Miroshnychenko et al. (2017) study clearly demonstrates that environmental sustainability practices are closely linked to a firm's future market worth. Often, attention is focused on economic performance, the ability of companies to reduce costs related to their activities. Bagur-Femenias et al. (2016) suggest that hotels committed to maintaining green policies achieve superior outcomes. According to Do and Nguyen (2020), it is evident that the implementation of a proactive environmental approach yields competitive advantages. The link between proactive socio-environmental practices and economic performance is direct (Annunziata et al., 2018). Some studies focus on the operational aspects of the management of companies. A study that identifies a positive relationship between environmental and operational performance is the one by (Ahmed et al., 2019). The research conducted by Perramon et al. (2022) revealed a beneficial effect of eco-friendly practices on the

competitiveness of hotels, like the one by Teruel-Sanchez et al. (2021), which argues that environmental sustainability practices positively impact business results.

Companies adopt measures to preserve the environment because they are under pressure from stakeholders and find opportunities to increase their returns and reinforce their positive image. Environmental preservation has gone from being a problem to an option (Y. M. Tang et al., 2022). Environmental sustainability is implicitly oriented towards the long term and implies a strategic position more likely to sacrifice immediate benefits to future environmental integrity (Miska et al., 2018). In short, it is found that the environmental dimension of triple bottom line positively influences the performance of companies in its different measures.

It is essential to update business ethics to accommodate environmental concerns. After determining that the environmental sustainability practices positively influence the five different performance measures, the obstacles to full acceptance should be considered. The idea of a short-term profit, disposable and synonymous with environmental destruction, will not maintain its strength in the face of a new vision of creating value allied to an ecological conscience. How can it be portrayed in corporate ethics that the ideal time to plant a tree was 20 years ago, and the second-best time is now, even if we don't get to enjoy its shade?

5.5.2 Policy implications

The fact that management decisions are influenced mainly by coercive forces, primarily in the form of regulations and regulatory compliance, strongly aligns with the theoretical framework of institutional theory (Luo & Tang, 2016). Therefore, policy implications need to be given special attention. From this study, several policy implications can be named and should be implemented by governments. Regulations can enhance the strategic potential of eco-design practices for innovation and, consequently, for performance (Omri et al., 2023). In the specific case of financial performance, and considering that efforts are being made to enhance environmental sustainability practices, regulators must provide greater financial flexibility to companies whose activity involves greater environmental responsibility. Combating the perpetuation of environmentally harmful practices that are not changed due to monetary restrictions. The tax exemptions that accompany the transition from these practices to those that allow for the maintenance of ecosystems may be beneficial. Information regarding environmental concerns can exert a significant influence on the stock market (El Ouadghiri et al., 2021). Accordingly, the administration should strengthen public attention through campaigns that force companies to share more

comprehensively the circumstances in which they operate. It is imperative to implement regulations that render greenwashing unfeasible. From an economic performance point of view, the government can utilize green subsidies to incentivize environmental-friendly practices (X. Xie et al., 2019). Governments must acknowledge the importance of professional voices to gain a comprehensive understanding of the obstacles faced by companies in the development, implementation, and execution of green initiatives. Finally, to enhance operational performance based on sustainable practices, policymakers should strengthen accessibility to technological advances by implementing environmental guidelines for learning programs. Synergies and financial support should be fostered between customers, partners, and competitors. Support for companies that require greater state monitoring must be matched by recognition of firms that already adhere to ecological standards deemed essential.

5.5.3 Theoretical Implications

The study provides several valuable theoretical implications. It reinforces the sustainability literature based on the triple bottom line, strengthens the application of stakeholder, institutional and contingency theories to sustainability issues, and expands the literature in the domain of the relationship between environmental sustainability practices and the performance of companies. In addition, it is known that a review can contribute and advance the theory by clarifying a construct (Post et al., 2020). And the constructs of environmental sustainability practices, firm performance, accounting based firm performance, market-based firm performance, economic based firm performance and operational-based firm performance were developed here. Having established that environmental sustainability practices are a safe bet for the environment and companies, it becomes necessary to develop and subsequently implement indicators capable of assessing the effectiveness and efficiency of pollution prevention strategies and promoting an environmentally sustainable planet. Although workers' environmental awareness does not contribute to corporate social responsibility (S. S. Ali & Kaur, 2021), environmentally conscious thinking should be promoted in business strategies (S. S. Ali et al., 2022). The study of environmental sustainability, company performance and stakeholder relations (Y. Yang et al., 2018) contribute to strengthening the relationships between companies and stakeholders. These relationships stem from the new way of looking at stakeholder pressures as opportunities and contribute to improving the multiple aspects of competitiveness. This study's outcomes align with the instrumental approach of stakeholder theory. The alignment of businesses with the goals of their stakeholders enhances their image in

the market, boosts their performance, and draws in investors and customers (Jan et al., 2023). But there are numerous contingencies surrounding all sustainability issues. And the environmental performance of organizations depends on their ability to balance their political operations, the external environment and their structures (S. S. Ali et al., 2021). It is expected that the necessary development of the triple bottom line will allow for a scientific framework that will lead to the definition of legal norms. In addition, allowing the systemic, formal and systematic inclusion of different stakeholder interests, particularly environmental ones, in the design and implementation of business strategies. Because, environmentally sustainable practices contribute to a more sustainable society (S. S. Ali et al., 2020). But the sustainable agenda requires an ongoing, long-term effort (S. S. Ali et al., 2020).

5.5.4 Practical Implications

Several practical implications can be drawn from this study. The study establishes that environmental sustainability practices positively impact the performance of companies, in their various measures. Thus, the discussion that revolves around the problem of implementing or not measures that enhance environmental well-being reinforces the idea that, for companies, it is profitable to be green. The operationalization of this strategy must be associated with a corporate reputation (Kwon et al., 2021; Z. Ullah, 2021). Small and medium-sized companies must reconfigure and reorient their management (Y. Ali et al., 2021), requiring analysis (Cankaya & Sezen, 2019). Managers should consider a long-term strategic plan for sustainability innovation, which is imperative for the development and survival of companies (X. H. Peng & Zhang, 2022).

To encourage companies to embrace environmental sustainability practices, it is suggested that government agencies consider strict environmental regulations (S. A. R. Khan & Yu, 2021; Le & Ikram, 2022). Creating cross-sectoral education programs that provide the necessary knowledge to obtain regulatory compliance can be a solution (Frempong et al., 2021). In addition, governments must implement measures that encourage companies to adopt green supply chain management practices (Nureen et al., 2022), technology development (C. C. Zhu et al., 2022), and appropriate for the expansion and deepening of technology in all industries (S. R. Park et al., 2022). This implies that regulators and policymakers deeply understand the characteristics of business models (X. L. Tang, 2022). That managers and executives truly investigate practices to encourage environmental performance (Al-Nimer et al., 2021). In this way, true sustainability can be achieved based on the principles of triple bottom line, which

brings sustainable benefits to companies, the environment, society and the nation (Le & Ikram, 2022).

5.6 Conclusion

The research reveals that the triple bottom line's environmental dimension positively influences companies' performance. The study proposes a novel approach to environmental accountability, demonstrating that: environmental sustainability practices positively influence all five performance measures, namely, the overall, accounting, market, economic, and operational performance. However, only four positive moderating effects were identified. Implementing these practices can enhance business outcomes, even if the motivation for their implementation is not based on environmental concerns. The rationale behind the strategic options that are imposed upon corporations is derived from their adaptability, which is the core of contingency theory; the pressure exerted by stakeholders and their capacity to influence institutions; and the theoretical framework of institutional theory, which holds that management decisions are influenced by coercive forces, primarily in the form of regulations and regulatory compliance. Business ethics needs to be updated to take into account environmental concerns. This study improves the knowledge regarding environmental sustainability and company performance. It promotes managers' competence by providing a pragmatic mechanism for evaluating the strategies they must implement.

The exercise that the study presents not only supports the current that identifies environmental sustainability practices as profit creators but also adds strategies to enhance these incomes. But it is not without limitations. The sample was taken from the Web of Science, one of the most comprehensive databases of peer-reviewed publications, but it is not the only source (Nogueira et al., 2023). Some literature may have been omitted due to the filtering process (Lopes, Gomes & Rodrigues, 2022). It is important to recognize that the mean effect size applies particularly to the studies analysed here and that it will be different for another mix of populations (Borenstein, 2019). As the results of this study are based on a quantitative approach, future studies should consider a qualitative approach. Furthermore, now that the influence of environmental practices on all performance measures has been established as positive, it is important to identify constructs that moderate this relationship (Qorri et al., 2021). Environmental sustainability practices are multidimensional and deserve particular attention, especially the distinction between practices that require high investments and those that only depend on recognition of their importance by management. It is also important to expand the research to confirm the eco-efficiency

and eco-effectiveness of the firm (Russo et al., 2021). It would be interesting to explore the many avenues of research available in green supply chain management (Nureen et al., 2023). The notion survives that there are costly sustainability activities and that they are implemented to comply with installed regulations. It is crucial to understand whether stakeholders can create synergies that distribute the cost associated with those activities to agents other than the company itself.

CHAPTER 6 - THE CONTRIBUTION OF THE LABOUR PRACTICES TO ORGANISATIONAL PERFORMANCE: THE MEDIATING ROLE OF SOCIAL SUSTAINABILITY

Abstract

In the fiercely competitive global business environment, the attainment of excellence is contingent upon the efficient management of human resources and their alignment with Sustainable Development Goals. This study examines the interplay between social sustainability, organizational performance, and labour practices, with a focus on the often-ignored perspectives of employees. Employees, often neglected as critical stakeholders, shape corporate values and strategy. A sample of 574 Portuguese employees was collected through a questionnaire. The study uses a quantitative approach, having applied the Partial Least Square method for the proposed research model. The results indicate that the examined labour practices exert a favourable influence on the enhancement of social sustainability, thereby enhancing organizational performance. Furthermore, these practices significantly influence organizational performance when mediated by social sustainability. Companies must place a high priority on the perceptions of their employees to achieve social sustainability. This involves incorporating inclusive, participative, and proactive policies regarding human resources policies, thereby leveraging the mutual advantages derived from labour practices. This demonstrates the pivotal role of social sustainability in companies' decision-making processes, as it substantially contributes to enhancing organizational performance. The original model, social sustainability-driven organizational performance, which is based on employees' perceptions, identifies labour practices as antecedents of social sustainability, and the influence of social sustainability, both directly and as a mediator, on organizational performance, is presented.

Keywords: Triple bottom line, social sustainability, organizational performance, employee development, equal opportunity, employee participation.

6.1 Introduction

In the contemporary era of global competition, the pursuit of excellence in business practices has assumed utmost importance, which requires the cultivation and management of top-tier human resource competencies (Amrutha & Geetha, 2020). Organizations must align their strategic intent with the values underpinning sustainable development goals to ensure long-term growth, profitability, and improved organizational performance (Amrutha & Geetha, 2020). In organizational contexts, social sustainability has emerged as a multifaceted, intricate, and challenging concept that holds the potential to augment employee well-being, promote development, enhance organizational productivity, and facilitate innovation, collectively shaping the trajectory of organizations (Prieto et al., 2022). The incorporation of sustainability in the companies' strategy results from legal impositions and reflects the companies' quest to obtain competitive advantages (C. M. J. Lee et al., 2021) to achieve better organisational performance (Hult, 2011). Increasingly, sustainability focuses on the triple bottom principles line (Bansal, 2005). This accounting structure (Law, 2015) is a business framework that considers the performance of economic, environmental and social dimensions (Elkington, 2006) as the drivers of business value (Tseng et al., 2018), mirroring the principles of sustainable development (Tseng et al., 2018).

Unlike the triple bottom line's economic and environmental dimensions, the social dimension remains underrepresented in management theory and practice (Tate & Bals, 2018) as it is the least studied (Badri Ahmadi et al., 2017; Eizenberg & Jabareen, 2017; Ilyas et al., 2020; Staniškienė & Stankevičiūtė, 2018). Namely, because public and private efforts are centred on economic and environmental issues (Ajmal et al., 2018; C. M. J. Lee et al., 2021). Other studies have already identified the lack of analyses on the influence of social value on companies (Certo & Miller, 2008; Mair & Martí, 2006; Murphy & Coombes, 2009; Narangajavana et al., 2016), even with the increased interest of academics in organisational performance in the last decade (Fetrati et al., 2022). This makes it urgent to understand social sustainability (Ajmal et al., 2018).

This study poses two fundamental research questions: (i) does social sustainability influence organisational performance?; and (ii) does social sustainability act as a mediating element in the relationship between organisational performance and human resource practices?

The dedication to fairness and equality within organizations acts as a catalyst for acquiring a competitive edge and achieving exceptional results, ultimately resulting in a wide range of favourable outcomes that play an integral role in the progression of both social and human well-being (Abid et al., 2020). Within the context of the social

dimension, it is essential to recognize that an organization's most valuable asset is its employees (Guest, 2011; Pfeffer, 2010). These embody the companies' corporate social values and establish the business strategy design and implementation (Korschun et al., 2014). Employee involvement in management processes and in defining the company's culture plays a pivotal role in enhancing organizational performance (de Nadae et al., 2021). However, the perception of employees in measuring social sustainability has been forgotten (Staniškienė & Stankevičiūtė, 2018), even though it can contribute to organisational performance (K. Y. Kim et al., 2022). A shared vision can improve organisations' performance (Howell & Frost, 1989; Pearce & Ensley, 2004), requiring further studies that consider employees' perspectives (K. Y. Kim et al., 2022).

Hence, in pursuit of a comprehensive understanding of social sustainability and its influence on organizational performance, this study embarks on the exploration of the perceptions held by Portuguese employees concerning labour practices, social sustainability, and organizational performance, as well as the intricate interplay among these constructs. This study uniquely combines the understudied perspective of employees regarding labour practices with an in-depth analysis of the consequential effects of social sustainability on organizational performance. It introduces an original structural model that considers employee development, employee participation, and equal opportunities as antecedents of social sustainability, ultimately impacting organizational performance.

This research complements recent work on social sustainability, labour practices, and organizational performance dynamics. Six main key contributions are brought by this study. The first and foremost is the introduction of an original model - social sustainability-driven organizational performance. The centrality of this model emphasizes the crucial significance of fostering social sustainability as a catalyst for enhancing organizational performance and guaranteeing the sustainability and long-term viability of organizations. The previous research has centred on examining indicators or constructs (Prieto et al., 2022; Staniškienė & Stankevičiūtė, 2018). In contrast, this study scrutinizes the relationships between the investigated practices. The second contribution of this study is its employee-centric approach, as it departs from the typical approach seen in prior research, which predominantly relied on statistical data sources and indicators (Sroufe & Gopalakrishna-Remani, 2019), to distinctly prioritize the perspectives of employees. This approach creates a much-needed new line of investigation, where employees are at the centre of research. In addition to recognizing the importance of the employee's perspective, the third contribution is employee key stakeholder recognition, reinforcing their importance in

shaping organizational outcomes. The fourth contribution is the identification of value generation through social sustainability, highlighting the role of social sustainability as a catalyst for generating value within organizations. The fifth contribution is the identification of benefits for firms resulting from the investigated interactions, shedding light on the advantages that can be accrued from integrating social sustainability and fair human resources practices. Finally, the sixth contribution of this study is the provision of strategic insights. These can guide companies in their efforts to achieve better outcomes and long-term sustainability.

6.2 Literature Review

6.2.1 Stakeholder Theory

From the 1990s onwards, the stakeholder-based view became more prevalent when reporting organisational performance (Hubbard, 2009). The stakeholder theory evaluates the performance of companies concerning the expectations of the subjects (groups or individuals) who are interested in the results of business activities (Hubbard, 2009). The ability of companies to achieve the objectives incorporated in their mission can be affected or affect stakeholders who, therefore, have to be appreciated as a vital part of the business strategy (E. Freeman, 1984). Stakeholders increasingly pressure companies to embrace a real social commitment (Arco-Castro et al., 2020). When business activity is in line with ethical behaviour, it fosters a strong relationship with stakeholders, which results in a competitive advantage (McWilliams & Siegel, 2001). Regarding stakeholders, employees comprise a very influential group (Brammer & Millington, 2005) who prefer to be related to socially responsible companies and are more loyal to them (Brammer & Millington, 2005). When they identify with the companies, they demand a planning of ethical and moral attitudes (M. Farooq et al., 2014). This attitude reinforces the logic that the value created by companies must be shared in society and it must meet social needs and challenges (Porter & Kramer, 2011), making identification with the company subject to the image of organisational status (Dutton et al., 1994; Tyler & Blader, 2003). Stakeholder theory has its core in three interconnected business problems: (i) the creation of value and its commercialisation, (ii) the connection between ethics and capitalism, and (iii) the managerial mindset that allows the resolution of the first two problems (Parmar et al., 2010). One of its concerns is identifying who has input in decision-making and who is the beneficiary of the outcomes of those decisions (R. Phillips et al., 2003). This theory provides the answer to what, of effective organisational performance management, one

of the most persistent management challenges (Pinto, 2019). Organisational performance is, in management research, one of the most important constructs (Richard et al., 2009) and can be affected by pressure from stakeholders to make certain decisions (R. Phillips et al., 2003).

6.2.2 Social sustainability and organisational performance

Social sustainability is regarded as a fundamental component of every organization (Popovic et al., 2018). Given the complexity and scope of social sustainability, a universal definition is impossible or undesirable (Jung, 2017). In general, it refers to workers and social members of society who are impacted by the results of companies (Schönborn et al., 2019). For the business to become less vulnerable to risk and more respectable, it is expected that companies are concerned with social sustainability (Ajmal et al., 2018). That can be understood as a strategy that originates positive changes and constitutes a competitive advantage (C. M. J. Lee et al., 2021). Competitive advantages can lead to stronger organisational performance (Orlitzky et al., 2003). Several studies have discussed how models create social value (Chell, 2007; Narangajavana et al., 2016). Even so, measuring and evaluating the impact of social value is necessary (Kroeger & Weber, 2014; Mair & Martí, 2006). Social sustainability can benefit from fair human resource policies that strengthen relationships and emotional connections between and within the different hierarchical levels and positively impact worker satisfaction (Cugueró-Escofet et al., 2019).

Organisational performance translates to the company's ability to meet the requirements of various stakeholders (V. Z. Chen et al., 2022; Richard et al., 2009). Both the academic world and the business community agree that the way an organisation manages people can be an element that influences its performance (Delaney & Huselid, 1996). Therefore, the postures adopted by workers are levers of organisational performance (Saari & Judge, 2004), where the request and incorporation of the voice of employees are vital (Fast et al., 2014). Qualified and motivated employees, who are directly involved in decisions regarding jobs and ways of carrying them out, should affect organisational performance (Delaney & Huselid, 1996). The literature provides robust evidence supporting the positive relationship between sustainable human resource management and organisational performance (Podgorodnichenko et al., 2022). There is a positive relationship between the management of social sustainability practices and the company's performance (Sroufe & Gopalakrishna-Remani, 2019). A mediation process can be established. As companies that ensure that employees are treated fairly, have good working conditions

and receive fair wages are socially sustainable (Hutchins & Sutherland, 2008). They adhere to protocols, which in turn increases productivity (Haas & Yorio, 2016). Based on this evidence, the following hypothesis was formulated:

H1: The social sustainability of companies can positively influence their organisational performance.

6.2.3 Labour practices

6.2.3.1 Employee development

The nature of sustainability is long-term, so developing employees' future capabilities is extremely important (Staniškienė & Stankevičiūtė, 2018). Employee development represents a consistent and collaborative effort between employees and employers, aimed at enriching individuals' skills, attitudes, experiences, abilities, and knowledge to enhance their effectiveness (W. Rahman & Nas, 2013). Beyond the individual's personal growth, the advancement of social sustainability hinges on the effective implementation of employee development, it catalyses effective change and the transformation of organizational culture, facilitating the formulation of concrete strategies and actions (Garavan & McGuire, 2010). From the employees' perspective, the development of employees is a critical condition for achieving social sustainability (Staniškienė & Stankevičiūtė, 2018). It is also incorporated into the company's relationship with its stakeholders and allows for the assessment of social sustainability as part of its performance measures (Jørgensen et al., 2008). Notably, business practices that prioritize and facilitate employee development contribute significantly to the simultaneous achievement of social and economic objectives (Garavan & McGuire, 2010). Thus, the following hypothesis was formulated:

H2: The activities of the development of employees can positively influence the social sustainability of companies.

The mediation role of social sustainability is evident in its capacity to facilitate a connection between employee development and organizational performance. This relationship has been empirically supported, with research demonstrating that investments in employee development improve performance (Delaney & Huselid, 1996); positively influence high-performance work systems (Barnard & Rodgers, 2000) and ultimately affect organisational performance (Jayathilake et al., 2021; Z. Khan et al., 2019). Accordingly, the following hypothesis was established.

H2a: The activities of the development of employees can positively influence organisational performance when mediated by the social sustainability of companies.

6.2.3.2 Employee Participation

Numerous studies have suggested a link between employee participation and organisational performance (K. Jiang & Messersmith, 2018; Khatri, 2000; Litwin & Eaton, 2018). This human resource management practice improves organisational performance (Arthur, 1992; Batt, 2002), improves morale (Spreitzer & Mishra, 1999), and increases productivity and effectiveness (Gollan, 2005). It can be translated as a communion of influence between supervisors and subordinates (Wagner, 1994), whose relationship of trust improves productivity and efficiency (Valverde-Moreno et al., 2021). It also translates a set of conditions that the company creates for the submission of proposals and the participation of employees in decision-making processes (Staniškienė & Stankevičiūtė, 2018). In this way, it promotes greater social sustainability of organisations (Valverde-Moreno et al., 2021) as it strongly affects them (O. Farooq et al., 2019). Employees' experiences at work, influencing self-esteem and identity, play a vital role in shaping their perceptions of the organization (Collier & Esteban, 2007). Positive organizational attributes lead to strong identification, fostering cooperative behaviours (Collier & Esteban, 2007). This alignment positively impacts social sustainability and, consequently, organizational performance. Therefore, the following hypothesis was developed.

H3: The activities of the employee participation can positively influence the social sustainability of companies.

Employee participation is a key management tool that contributes to achieving sustainable competitive advantages (Uribetxebarria et al., 2021). It also contributes to improving the performance (Delaney & Huselid, 1996; K. Y. Lu et al., 2015) of workplace profitability (Yanadori & Jaarsveld, 2014) and positively influences the profit of the companies (Y. Jiang et al., 2021; A. Kim et al., 2017). Social sustainability serves as a mediator (Chavez et al., 2022), as motivated individuals, who believe their organization care for them, exhibit high levels of work efficiency (Kaplan & Bradley, 2009; Z. Wang et al., 2015). Hence, the following hypothesis was derived.

H3a: The activities of employee participation can positively influence organisational performance when mediated by social sustainability.

6.2.3.3 Equal Opportunity

Socially responsible companies provide a working environment that is free from discrimination (Sorribes et al., 2021). Several authors support the inclusion of gender equality practices in corporate social responsibility (Larrieta-Rubín de Celis et al.,

2015). In labour terms, equal opportunities represent labour practices that are not based on the sociodemographic characteristics of employees (Staniškienė & Stankevičiūtė, 2018). There are measures that can be implemented to ensure it (Ingenhoff & Koelling, 2012). Equal opportunities translate to the employees' perception that there is no discrimination in how they are treated (Armstrong et al., 2010; Bengisu & Balta, 2010). Consequently, it is identified as an important indicator of the social dimension of sustainability (Rafiaani, Kuppens et al., 2020). In this manner, the following hypothesis was articulated:

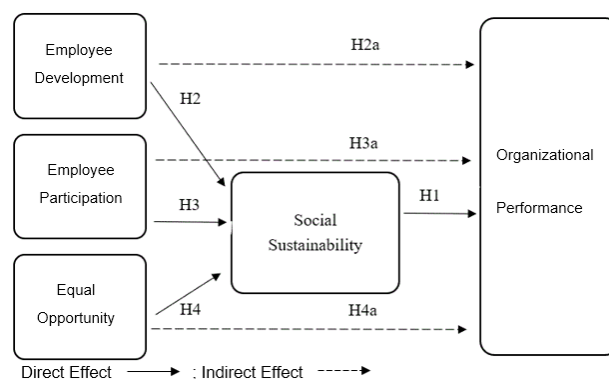
H 4: The activities of equal opportunity can positively influence the social sustainability of companies.

When equal opportunity is considered in the decision-making process in companies, it can improve social sustainability and lower economic costs (Rafiaani, Dikopoulou et al., 2020). Companies that care about equal opportunity demonstrate a greater propensity for value creation (Samet et al., 2022) and are more likely to ensure their long-term viability (Azapagic, 2003), positively influencing the performance of organisations (Armstrong et al., 2010; García-Rodríguez et al., 2020). Sustainability and organizational performance have a significant connection (Chatterjee et al., 2023). The interrelationship among equal opportunity, social sustainability, and organizational performance underscores a dynamic synergy that warrants comprehensive investigation. For this reason, the following hypothesis was generated:

H4a: The activities of equal opportunity can positively influence organisational performance when mediated by the social sustainability of companies.

In this context, a structural research model and the formulated hypotheses are presented in Figure 13.

Figure 13 - Structural research model and hypotheses.



Source: Own elaboration.

6.3 Materials and methods

6.3.1 Sample and measurements

The sample for this study was collected using a questionnaire, (Annex I), made available online, between April and September 2022, to Portuguese employees. The hyperlink to the questionnaire was distributed through the authors' social media (Facebook, LinkedIn and Instagram), thereby guaranteeing the anonymity of responses, as those involved only had access to the hyperlink. This ensures the protection of ethical concerns, as the very first question of the survey concerns obtaining informed consent, without revealing the identity of the person taking part. The research process was centred around two crucial ethical concerns: safeguarding personal data and researcher transparency (Gelinis et al., 2017). The conception and execution of surveys must begin with a primary focus on the detection of fraud (Levi et al., 2022; Roehl & Harland, 2022). The condition for participation was to be an employee of a for-profit company for at least 6 months, and this requirement was reflected in the participation instructions. Participants were informed of the study's objective and gave their informed consent to the use of the data. Their participation was voluntary and anonymous. A pre-test with 15 participants (with different socio-demographic characteristics: gender, age, education and income) was conducted to ensure that the participants understood the questions. This approach resulted in a dataset comprising 574 valid responses.

The questionnaire consists of six groups of questions, which were adapted. The first group (i) was adapted from Staniškienė & Stankevičiūtė (2018) and gathered information regarding sociodemographic characteristics. In the remaining groups, the employees' perceptions were evaluated concerning: (ii) employee development (adapted from Holtbrügge et al. (2015) and Staniškienė and Stankevičiūtė (2018)); (iii) employee participation (adapted from Cheng (2021) and Staniškienė and Stankevičiūtė (2018)); (iv) equal opportunity (adapted from Nie et al. (2018), Rodríguez-Ariza et al. (2017) and Staniškienė and Stankevičiūtė (2018)); (v) social sustainability (adapted from Hale et al., 2019); and (vi) organisational performance (adapted from Claver-Cortés et al. (2020) and Y. Yu and Choi (2014)).

The evaluation of employee development was conducted taking into account the study of Holtbrügge et al. (2015). These authors contend that employee development is facilitated by employee cohesion and morality, which are emphasized by a flexibility-oriented culture that emphasizes development and spontaneity. The evaluation also took into account Staniškienė & Stankevičiūtė (2018) posits that employee development concerns are linked to the development of competencies,

which the employees require now and in the future. This encompasses the training of employees, the transfer of experience within the organization, and the development of their abilities to obtain employment in the future.

Employee participation reflects mission-driven firms that can foster, enhance and broaden virtues in a win-win situation both within the firm and beyond since they can unite all stakeholders around a common goal (Ezvan & Langohr, 2022). The measurement of employee participation was developed based on the works by Cheng (2021) and Staniškienė & Stankevičiūtė (2018). The survey explored questions that probed the conditions the firm imposes or fails to create, for the involvement of employees in the decision-making process, in submitting suggestions for enhancement and exchanging data.

The principle of equal opportunity, which is a part of distributive justice, prevents people from agreeing that certain groups should be afforded more opportunities than others (Schumann, 2001). The evaluation of the degree to which each company reflects an equal opportunity environment was conducted by applying the work of Nie et al. (2018), Rodríguez-Ariza et al. (2017) and Staniškienė & Stankevičiūtė (2018). The group of inquiries pertaining to equal opportunity links the demographic characteristics of employees to the organizational procedures employed by the organizations.

According to Hale et. al (2019), several indicators that assess social sustainability have been organized into two categories: performative fair labour measures, which aim to determine whether individuals perceive labour as a concern, whether there are any exploitative activities, and how they are perceived; and performative social sustainability, which aim to incorporate concerns regarding development and performance. Finally, the evaluation of organizational performance was viewed as a variant of the balanced scorecard approach, which relies on a variety of global output metrics (Y. Yu & Choi, 2014). The estimation of this variable encompassed issues pertaining to the company's profitability and the generation and preservation of advantageous positions (Claver-Cortés et al., 2020; Y. Yu & Choi, 2014). A five-point Likert scale was adopted to measure all the questions, in which one corresponds to Totally Disagree and five to Totally Agree.

6.3.2 Data Analysis

This study adopts a quantitative approach. In SPSSv.25, the statistical analysis of the constructs proposed in the research model was carried out. Simple linear regressions were also tested to assess the association between the sociodemographic

characteristics of workers with their perception of social sustainability and the organisational performance of companies. Afterwards, the Partial Least Squares method in Smart PLS 4.0 (Ringle et al., 2022) was used to test the hypotheses of the research model. This method is appropriate for the treatment of samples collected through questionnaires since it does not require data normality and allows the optimisation of the relationships between the collected items and the constituted variables and between the latent variables (Ringle et al., 2020). Three measures must evaluate the validity and reliability of the construct (i) Average variance Extracted (AVE > 0.50), (ii) Cronbach's Alpha ($C \alpha > 0.70$), and (iii) Composite Reliability (CR > 0.70) (Hair et al., 2019). The Fornell-Larcker criterion should be used for the discriminant validity test. The predictive prediction must be tested against the values of R^2 of the endogenous latent variable.

6.4 Results

6.4.1 Descriptive Analysis

The sample consists of 574 valid responses. Volunteer-employed adults participated, 53.3% male, 46% female and 0.7% non-binary. The results of linear regression analyses, shown in Table 14, allow the assessment of relationships between demographic characteristics and dependent variables (social sustainability and organisational performance). There appears to be a positive statistical association between gender and social sustainability ($\beta = 0.0303$). In this way, women are more concerned with social sustainability. There is no statistical evidence that gender influences organisational performance.

More than half of the participants are between 36 and 50 years old (53.7%), and the average age is 43.7. Older workers tend to have lower organisational performance ($\beta = -0.1303$). Regarding the level of education, 74.2% of this study's participants have completed higher education studies (42.16% have a degree, 21.95% have a master's, and 10.1% have a doctorate). Workers with more education have greater perceptions of social sustainability ($\beta = 0.0225$) but also of organisational performance ($\beta = 0.0049$). As far as the sector of activity is concerned, the range is quite wide, with 24% of the participants carrying out their activity in the education sector, 14.6% in the financial and insurance sector and 14.6% in the manufacturing industries sector. There is no statistically significant relationship between the sector of activity in which employees work and social sustainability and organisational performance. Finally, regarding the type of functions performed, 52.3% of the sample are qualified workers. Skilled workers

tend to have greater perceptions of social sustainability and positively influence organisational performance ($\beta= 0.2039$ and $\beta= 0.1899$, respectively).

Table 14 - Association of sociodemographic variables with the dependent variables (social sustainability and organisational performance).

	Social Sustainability		Organisational Performance	
	Beta	p-value	Beta	p-value
Gender	0.0303	0.0068	-0.0783	0.4842
Age	-0.0474	0.3318	-0.1303	0.0431
Education	0.0225	0.0528	0.0049	0.0931
Sector of activity	-0.0027	0.7741	-0.0024	0.8714
Function that performs	0.2039	0.0000	0.1899	0.0001

Source: Own elaboration.

Table 15 presents a statistical analysis (means and standard deviations) for the independent variables, shown in Figure 13. The responses regarding employee development are, on average, greater than 3.00, which attests that there are favourable conditions for the development of employees in Portuguese companies. The guarantee of opportunity offered by companies to develop general and professional skills being more valued by workers (Average (M) = 3.48). Employee participation also generated high agreement (M = 3.60), which may indicate that Portuguese companies encourage conditions for workers to intervene in their processes, namely by making suggestions about improving the organisation's processes (M= 3.88) and sharing work problems with the bosses (M = 3.81). Finally, equal opportunities (M = 3.10) translates that the strategy of Portuguese companies is based on parity among employees, with the most valued item being equal opportunities for men and women for career progression (M= 3.55). However, it should be noted that the construct of equal opportunities was the one that generated the least agreement among the Portuguese workers surveyed, followed by the development of employees and, finally, the participation of workers.

Table 15 - Mean and standard deviation of independent variables.

Variables	Mean	Standard Deviation
Employee Development	3.29	1.16
ED1. The company guarantees opportunities for employees to develop their general and professional skills.	3.48	1.11
ED2. Employee skills development is oriented towards future needs.	3.42	1.12
ED3. The company guarantees opportunities for employees to participate in fairs or internships.	3.16	1.23
ED4. The company applies different ways for employee development.	3.13	1.11
ED5. The company constantly encourages employees to develop their skills.	3.28	1.22
Employee Participation	3.60	1.07
EP1. Employees share their personal problems with their bosses.	3.00	1.11
EP2. Employees share work-related problems with their bosses.	3.81	1.02
EP3. Employees give suggestions on improving the organisation's processes.	3.88	0.95
EP4. The company encourages employees to take responsibility for their decisions.	3.65	1.10
EP5. The company encourages employees to give suggestions on improving processes in the organisation.	3.66	1.18
Equal Opportunity	3.10	1.26
EO1. The compensation system is understandable for employees.	3.01	1.26
EO2. The compensation system is fair.	2.77	1.23
EO3. Employees are paid the same for the same work.	2.88	1.29
EO4. The company guarantees equal opportunities for personal development for employees.	3.10	1.28
EO5. The company guarantees equal opportunities for all candidates during the selection process.	3.29	1.20
EO6. The company ensures equal opportunities for men and women to advance in their careers.	3.55	1.30

Source: Own elaboration.

Regarding the statistical analysis of the independent variables (Table 16), the social sustainability and organisational performance items generated high and similar levels of agreement among the Portuguese workers surveyed (M = 3.60 and M = 3.58, respectively). Regarding social sustainability, the items that generate less agreement are those related to a fair wage (M = 2.77), knowledge of the workers' representative (M = 2.82) and the employer's help to the family (M = 2.73). Regarding organisational performance, there is a balance in the degree of agreement among the items surveyed.

Table 16 - Mean and standard deviation of dependent variables.

Variables	Mean	Standard Deviation
Social sustainability	3.60	1.04
SS1. My salary is fair.	2.77	1.28
SS2. My housing is good.	4.01	0.75
SS3. I'm safe at work.	3.72	1.01
SS4. I'm learning new skills.	3.52	1.14
SS5. I know who my union and/or employee representative is.	2.82	1.33
SS6. Men and women are treated equally at work.	3.86	1.17
SS7. I have time to chat with my co-workers.	3.81	0.99
SS8. I can talk to my boss about my ideas for improving tasks.	3.86	1.10
SS9. I have access to good food.	3.74	1.08
SS10. Employer helps families get things they need (e.g., school for children).	2.73	1.25
SS11. I can get a promotion.	3.10	1.30
SS12. I received good training for my job.	3.38	1.23
SS13. My job helps me achieve the things I want in my life.	3.52	1.15
SS14. The worker dispute resolution process is effective.	3.06	0.96
SS15. Employees are able to talk to each other about their interests and aspirations.	3.68	0.93
SS16. Good systems are in place to ensure workers are treated fairly.	3.21	1.10
SS17. The opinions of people from diverse backgrounds, in terms of gender, ethnicity, age and nationality, can be useful for decision-making.	3.76	0.99
SS18. I live with people who do not have my profession.	4.14	0.90
SS19. It is important to maintain good relations with community members.	4.31	0.82
SS20. It is important to maintain good relations with people different from me in terms of gender, race, nationality, interests and aspirations.	4.39	0.78
SS21. Most people in my community are trustworthy.	3.61	0.95
SS22. Leadership in my industry is trusted.	3.48	1.08
SS23. I can adequately express my views on sustainability to society at large.	3.85	0.85
SS24. I am able to work with people who have views on sustainability that are different from mine.	4.09	0.79
Organisational performance (OP)	3.58	1.02
OP1. The company has a competitive advantage in its sales growth.	3.57	1.03
OP2. The company has a competitive advantage in its market share.	3.60	1.05
OP3. The company has a competitive advantage in its profit growth.	3.56	1.01
OP4. The company has a competitive advantage in its return on investment.	3.58	0.99

Source: Own elaboration.

6.4.2 Evaluation of reflective measurement model

Table 17 presents the validation measures of the model obtained by estimating the research model using the Partial Least Squares method in terms of discriminant, validity, reliability and convergence following the indications of Hair et al. (2019). According to the results, the model has factorial convergence and is reliable since $C\alpha$

and CR > 0.70 (Hair et al., 2019). The model has Chi-Square ($p = 0.087$), Goodness-of-Fit (0.978), Comparative Fit Index (0.791), and Standard Root Mean Square Residual (0.078), which attests to the goodness of the model's fit, also according to Hair et al. (2019). For the measurement of the discriminant validity, the Fornell-Larcker criterion was used, with discriminant validity between the latent variables and the way they are measured (Table 17).

Table 17 - Discriminant, reliability and convergence of Partial Least Squares Model.

	$C\alpha$	CR	AVE	ED	EP	EO	OP	SS
Employee development (ED)	0.901	0.927	0.720	0.848				
Employee Participation (EP)	0.854	0.896	0.637	0.608	0.798			
Equal Opportunity (EO)	0.921	0.938	0.718	0.805	0.599	0.847		
Organisational Performance (OP)	0.966	0.976	0.909	0.525	0.472	0.536	0.953	
Social Sustainability (SS)	0.928	0.935	0.586	0.751	0.644	0.769	0.578	0.766

Note: AVE Square Root in bold.

Source: Own elaboration.

Table 18 presents the results of the estimation of multiple linear regressions based on the relationships and hypotheses presented in the research model. All results are statistically significant at $p = 0.000$.

Table 18 - Direct effects on organisational performance and social sustainability.

Effects on Endogenous Variable	Path (β)	tValue (Bootstrap)	Confidence Interval (2.5%; 97.5%)	Hypothesis Support
Organizational Performance ($R^2 = 0.334 / Q^2 = 0.302$)				
H1: Social Sustainability	0.581	11,507*	(0.472; 0.675)	yes
Social Sustainability ($R^2 = 0.769 / Q^2 = 0.283$)				
H2: Employee Development	0.294	5,176*	(0.185; 0.413)	yes
H3: Employee Participation	0.222	4,243*	(0.121; 0.323)	yes
H4: Equal Opportunity	0.407	6,988*	(0.292; 0.517)	yes

Note: * $p = 0.000$

Source: Own elaboration.

The results (Table 18) demonstrate the positive relationships between social sustainability and organizational performance ($\beta = 0.581$) and between employee development, employee participation and equal opportunity and organizational performance ($\beta = 0.294$, $\beta = 0.222$, $\beta = 0.407$, respectively), supporting hypotheses H1, H2, H3 and H4. However, the positive influence of independent variables on social sustainability is not similar. So, equal opportunity is the construct that most influences social sustainability, followed by employee development and participation.

As proposed in the research model, the mediating effect of social sustainability was also tested (Table 19). There is a positive influence of employee development, employee participation and equal opportunities in organisational performance ($\beta = 0.171$, $\beta = 0.129$ and $\beta = 0.236$, respectively) when mediated by social sustainability. Thus, hypotheses H2a, H3a and H4a are confirmed.

Table 19 - Mediation path results.

Effects on Endogenous Variable	Path (β)	tValue (Bootstrap)	Confidence Interval (2.5%; 97.5%)	Hypothesis Support
Organisational Performance				
H2a: Development of Employees -> Social Sustainability -> Organizational Performance	0.171	4,377*	(0.098; 0.251)	yes
H3a: Employee Participation -> Social Sustainability -> Organizational Performance	0.129	3,874*	(0.067; 0.200)	yes
H4a: Equal Opportunity -> Social Sustainability -> Organizational Performance	0.236	6,414*	(0.168; 0.313)	yes

Note: * p = 0.000

Source: Own elaboration.

6.5 Discussion and implications

6.5.1 Discussion of Results

Society is increasingly critical of the way companies operate and their results. Companies look for profit and have realised that this is not just a consequence of financial results. This pressure makes companies seek not only for financial results, but also for environmental and social ones (V. Z. Chen et al., 2022). Hence the need to understand how the social sustainability of companies can influence organisational

performance. This can become a competitive advantage (C. M. J. Lee et al., 2021) with the ability to strengthen organisational performance (Orlitzky et al., 2003).

This study investigates whether social sustainability can influence organisational performance and the determinants of social sustainability. The results reinforce previous studies' findings and demonstrate that companies' social sustainability can influence organisational performance (Torkayesh et al., 2022) and be influenced by labour practices, such as employee development (Staniškienė & Stankevičiūtė, 2018), employee participation (Valverde-Moreno et al., 2021) and equal opportunity (Rafiaani, Kuppens, et al., 2020). It also investigates whether the determinants of social sustainability positively influence organisational performance when mediated by social sustainability. In this way, social sustainability influences organisational performance and plays a mediating role between the constructs that represent labour practices and organisational performance. This strengthens the need for a paradigm shift in companies. Social sustainability should be a resource for companies, enhancing positive organisational changes and obliging them to change their focus from the short to the long term (C. M. J. Lee et al., 2021). Therefore, proactive social strategies that encourage social collaboration should be promoted (Lim et al., 2022). Consequently, orienting business practices towards sustainability stimulates organisational performance (Croom et al., 2018; Nath & Agrawal, 2020).

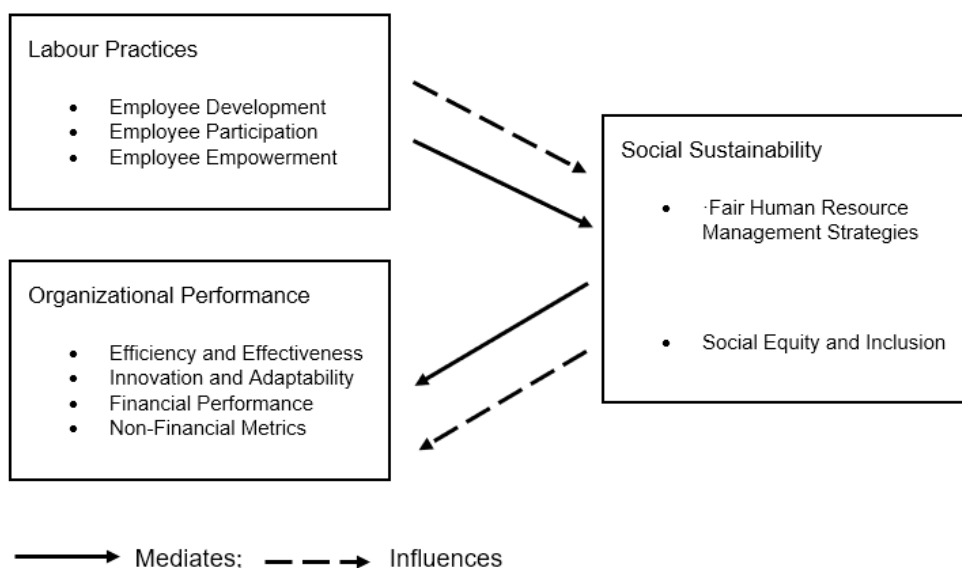
The results referring to employee development, employee participation and equal opportunity work practices, in line with several previous studies (García-Rodríguez et al., 2020; Jayathilake et al., 2021; K. Y. Lu et al., 2015; Z. Khan et al., 2019), reinforce the relationship between social sustainability and organisational performance. By demonstrating that labour practices are positive influencers of social sustainability, which also positively influences organisational performance. This justifies focusing on employees' concerns and well-being when studying social sustainability (Pfeffer, 2010). As it is known that social sustainability is influenced by fair human resource management strategies (Cugueró-Escofet et al., 2019), it can then be concluded that Portuguese employees see their companies as respectful of norms considered fair.

Employee development is synonymous with a qualitative evolution of employees' characteristics, which can serve the interests of both companies and employees - making this evolution a win-win situation for everyone involved. It thus becomes fundamental in a positive way for social sustainability (Staniškienė & Stankevičiūtė, 2018) and organisational performance (Jayathilake et al., 2021; Z. Khan et al., 2019). The study reinforces the previous suggestions that employee participation promotes social sustainability (O. Farooq et al., 2019; Valverde-Moreno et al., 2021) and its connection to organisational performance (K. Jiang & Messersmith, 2018; Khatri, 2000;

Litwin & Eaton, 2018). There should be no resistance to these reflections if it is considered that employees, like all human beings, produce better results if they are included in labour processes and decisions. Everyone seeks to be seen and valued. When this happens, employees are willing to make an additional effort that allows for personal fulfilment and improves performance and social and organisational indicators. Also, equal opportunity can positively influence social sustainability (Rafiaani, Dikopoulou et al., 2020) and organisational performance (Armstrong et al., 2010; García-Rodríguez et al., 2020). Social equity is at the heart of the European social model (Haar & Copeland, 2010) and is present in the labour relations of Portuguese employees. These workers value cultural diversity and social relationships. Thus, they are willing to contribute more positively to social sustainability and organisational performance when they feel equal treatment and opportunity.

Finally, the results of this study make clear the importance that employees have in the group of companies' stakeholders. Because not only are they the ones who define business strategies and how to put them into practice, but they are also the ones who execute them. Furthermore, as the recipients of labour practices, they can impact and contribute through their participation in companies for social sustainability and organisational performance. The formulated conclusions and the gained insights resulted in the formulation of a conceptual framework: Social sustainability-driven organizational performance model (Figure 14).

Figure 14 - Social Sustainability-Driven Organizational Performance Model.



Source: Own elaboration.

6.5.2 Theoretical Implications

This study demonstrates the role of stakeholder theory in linking labour practices to social sustainability and organisational performance. It also makes it possible to define antecedents of social sustainability and organisational performance by testing the relationships between the constructs of the research model and by filling the gap in studies related to the scarce research on the evaluation of employees' perceptions. The proposed original research model reinforces the role of employees as a central figure among stakeholders, as they directly influence business processes and results. In addition to improving social sustainability and, consequently, the company's reputation, employees are also a means of obtaining gains through improving organisational performance. This finding is an argument for the defence of social sustainability practices as a way of obtaining benefits. In addition, this study contributes to deepening quantitative measures of social sustainability and its relationship with organisational performance.

6.5.3 Practical Implications

The results demonstrate that labour practices can contribute to social sustainability and organisational performance. For the implementation of social sustainability to be effective, companies need to include inclusive, participatory and proactive human resources policies in their business strategies. Business strategies must incorporate synergies created by labour practices.

To this end, at the level of employee development, they must (i) guarantee effective opportunities for employee participation in strategic planning, creating opportunities for proposals, suggestions and innovative ideas; (ii) develop future strategic skills in employees by investing in specialised training, but also in entrepreneurship and financial literacy training to involve employees with the business and financial objectives and (iii) seek to promote the sharing of knowledge between companies of the same sector at a national and international level, proposing internship periods in this type of companies to accommodate better working practices.

As far as employee participation is concerned, the social distance between upper and lower hierarchies has to be shortened. To this end, coaching and personal development actions involving workers from different hierarchical levels are proposed. This will create a connection and empathy between the different workers, encouraging the sharing of work and personal problems and will lead to a greater balance in personal and work relationships. In addition, it will allow for more uninhibited

participation for employees to give suggestions and greater accountability for the tasks performed.

Finally, in terms of equal opportunities, this being the construct that most influences social sustainability and which generated the least agreement among Portuguese workers, companies should invest in transparent and fair selection processes, with outsourcing with a recruitment company being possibly one option. In addition, investing in implementing fair and clear assessment systems with an annual definition of objectives, quarterly monitoring and self-assessments of employees, and feedback meetings on the work carried out and evaluated. It is also important to establish career possibilities and work benefits (emotional wages) that make workers more satisfied and committed to the companies.

6.6 Conclusion

Although employees are part of the companies' stakeholder group, they are not given the importance they deserve. Its nature is inherent in the fact that employees are the ones to put all business actions into practice, whether in outlining strategy or in its operationalisation. They will perhaps be one of the elements that can most impact the results of companies. The present study seeks to explore the still little-studied perception of workers. The results show that social sustainability influences organisational performance, either directly or as a mediating element in the relationship between organisational performance and practices of employee development, employee participation and equal opportunity. In turn, these labour practices also positively influence social sustainability. In this way, the development of workers goes hand in hand with the development of the company itself, allowing personal knowledge to benefit companies as well. The ever-increasing importance given to individuality and respect for difference means that the care taken in dealing with employees produces positive results. Accepting everyone's participation and equity among all is a path to social sustainability, but also to enhancing organisational performance.

The original conceptual framework, the social sustainability-driven organizational performance model, proposed presents several singularities that not only strengthen the results but also help, in a much-needed way, to advance research in social sustainability. The data were obtained from the very understudied employees' perceptions. It studied not only the role of labour practices as antecedents of social sustainability but also the role of social sustainability as an influencing force, and as a mediator, of organisational performance,

The present study has some limitations. Its basis is the perceptions of Portuguese workers. Therefore, its generalisation must be understood in light of the prevailing macroeconomic scenario during the investigation. The sample is voluntary and may not include the perspectives of the most dissatisfied workers. In addition, three labour practices were used, and including other labour practices can lead to different results. Future studies should consider other constructs of labour practices and be focused on different industries so that it is possible to assess more specific implications and compare sectors.

Part II

CHAPTER 7 - CONCLUSION

The body of work that sum up this research aim to meet the general objective of this thesis: to understand the influence that triple bottom line, and that each of its dimensions, economic, environmental and social, can exert on economic development, establishing business strategies that will enable companies to achieve greater positive outcomes while contributing to the Sustainable Development Goals.

In order to attain the general objective, five specific objectives were established, and each of the five chapters comprising Part II corresponds to them.

The main conclusions of those studies will be presented in this section, 7. The reminiscences from those exercises led to the creation of a model (Triple Bottom Line Influence on Business Performance) that will be presented here. Theoretical and practical contributions will be shared. Furthermore, the limitations of the studies and the related future lines of research are identified. Finally, the outcomes of this PhD thesis are presented.

7.1 Main research findings and model creation

The main findings from the research in Part II of this thesis are summarized in this subsection.

In chapter 2, the exploration of the influence that triple bottom line can have on economic development was started. This exercise yielded a variety of elucidations that enabled us to formulate the notion that the triple bottom line exerts an influence on the economic development and that the activities it represents interact with the outcomes of sustainability. Therefore, economic growth can be obtained through sustainable practices (Gu & Wang, 2022). Because competitive advantage can be obtained when companies are socially responsible (Lassala et al., 2021). Thus, it is accepted that: the social dimension of companies is a way of leveraging business competitiveness. Positive environmental performance improves economic performance (Layaoen et al., 2023). And the supply chain management is at the front line of business sustainability (Meixell & Luoma, 2015). However, its planning necessitates a decision between resilience and sustainability (J. Singh et al., 2023), and companies are confronted with numerous sustainability concerns and must make crucial decisions to address environmental concerns (Ishizaka et al., 2022). Even if, environmentally conscious practices contribute to the efficiency and strength of complex decision-making

processes (S. A. R. Khan et al., 2023). It can be argued that: decision-making and supply chain are at the forefront of environmental sustainability. The economic dimension of triple bottom line imposes a significant pressure on companies to re-evaluate their business objectives in order to balance the interests of the Planet and People (Bonfanti et al., 2022). Therefore, it's the economic performance that drives sustainable processes in companies (Agrawal & Singh, 2021; Martens & Carvalho, 2017). Planning and implementing activities whose environmental impact is fraught with uncertainty requires understanding and discussing the economic benefits of business activity is vital for planning (Fridriksson et al., 2020). However, different players have different expectations and advocate different strategies (Fridriksson et al., 2020). Thus, planning is one of the most difficult battles toward economic sustainability.

The management of sustainability is subject to the adaptation of measurement tools that take into account economic, environmental and social resources (Mengistu & Panizzolo, 2022; Milne & Gray, 2013). The increasing demand for corporate reporting, which also include environmental and social results, has led to an increasing appreciation for performance measures and evaluations (Perello-Marin et al., 2022). The triple bottom line framework is widely recognized as the predominant business reporting framework (Milne & Gray, 2013) and its approach to sustainability is three-dimensional (Kaur et al., 2022). Following this reasoning: triple bottom line performance is a holistic measure. Nations and business organizations continue to perceive the sustainability challenges and goals imposed across all nations as legal obligations that they must adhere to, rather than as sources of competitive advantage. It should be borne in mind that, profit is not the ultimate goal but rather a means to achieve a specific objective, and this has implications for the design of company performance measures, which can extend beyond monetary terms (Isaksson et al., 2015). The analysis of the correlation between triple bottom line and economic development concepts, as well as business strategy concepts such as competitiveness, decision-making, and planning has demonstrated that triple bottom line has the ability to influence economic development. Business organizations play a crucial role in formulating strategies based on three fundamental pillars: social competitiveness, environmental decision-making, and economic planning. The business strategy based on the three dimensions suggested by triple bottom line can promote economic development, enhancing the performance of nations and business entities in terms of financial, social, and environmental sustainability. But profit is not the ultimate goal but rather a means to achieve a specific objective, and this has implications for the design of company performance measures, which can extend beyond monetary terms.

Chapter 3 presents an analysis of the influence of triple bottom line on economic development in 38 Organisation for Economic Co-operation and Development countries, from 2006 to 2019. The Human Development Index served as a proxy for the economic development. The three dimensions of Sustainable Society Index, namely human well-being, environmental well-being and economic well-being, along with the seven categories of basic needs, personal development & health, well-balanced society, natural resources, climate & energy, transition and economy, served as proxies for triple bottom line. This analysis supports the conclusion that the social dimension of the triple bottom line has a positive influence on economic development. The environmental dimension has a negative influence on economic development. And that, the economic dimension of the triple bottom line, not having a favourable influence on economic development in all the examined aspects, serves as a translator of conflicting synergies. The findings enable us to verify that the activities that promote human well-being are inherently catalysts for economic development. Cultural characteristics (Tabellini, 2010), the inclusion of girls in education (Sommer & Fallon, 2020), female empowerment (Wyndow et al., 2013), and education (Cui & Martins, 2021) are among the factors that serve as catalysts, resulting in a favourable impact on the generation of economic development. Health efforts also promote a healthy and productive population (Gupta et al., 2002). Although it is a non-consensual idea (B. Peng et al., 2020), environmental protection has been perceived as an obstacle to economic development (Q. Wang et al., 2015). The results indicate no positive effect on Human Development Index when environmental wellbeing increases. This reinforces previous studies reflections. For example, Lai et al. (2020) found that economic development suffered negative effects from environmental protection. Furthermore, B. Peng et al. (2020) argued that environmental protection could slow down economic development in the short run. Nonetheless, there is a growing awareness among governments that the impact of climate change on economic development may be detrimental (Carraro, 2016). Economic wellbeing did not have a statistically significant effect on Human Development Index. Which may be explained by the ambiguity in its indicators, which in turn reflects the conflicts in the relations between economic growth and economic development. The economic dimension refers to the concern with profit, at the expense of environmental and social concerns (Busse, 2016). Upon analysis, it can be observed that it pertains to growth measures that are quantitative in nature and do not accurately reflect the level of quality of life in society (Abad-Segura & González-Zamar, 2021). Moreover, a series of issues arise as a consequence of the expansion of economic growth (Brueckner & Lederman, 2018).

In chapters 4, 5 and 6, a comprehensive analysis was conducted to examine the influence that each of the triple bottom line dimensions exerts on the economic development. Therefore, chapter 4 was dedicated to the economic dimension of triple bottom line. Chapter 5, addresses the environmental dimension of triple bottom line. And, chapter 6 focuses on the social dimension of triple bottom line.

The objective of the study presented in chapter 4 is to scrutinize the influence of the economic dimension of triple bottom line on firms' financial performance. A data panel was used to examine financial ratios of 70,057 Portuguese firms, covering the period from 2010 to 2020. The findings indicate that financial performance of companies can be positively influence by the economic dimension of triple bottom line, both in terms of continuity and value creation. The principle of continuity reflects the long-term survivability of companies. It's the foundational accounting principle for most recognition and assessment criteria: business should continue to operate in the future (Gallizo & Saladrigues, 2016). The creation of value for stakeholders can contribute to the improvement of accounting procedures that will be propagated by firms and will receive the support of all parties involved. In order to this assistance to be efficacious, it is imperative to identify the ratios that have an influence on the financial performance of corporations. This contributes to the dissolution of the distinction between economic and sustainable accounting, as well as the distinction between financial and other stakeholders. The asymmetry that frequently exists between stakeholders' interests forces managers to consider the organization's purpose and the firm's specific goals. Additionally, it presses them to adopt a strategy that involves stakeholders in the creation of solutions and analyses, thereby overcoming the technocratic vision of the intricate issues of sustainability (Schaltegger et al., 2019). Therefore, it is imperative to adopt novel approaches in the management of human resources, organizational culture, and education, in order to ensure that managers engage with stakeholders in a constructive, serious, and effective manner (Schaltegger et al., 2019). The results revealed that all the analyses ratios (net profit to equity, total assets to current assets, assets turnover, current ratio, and total liabilities to total assets) have a positive influence on firms' performance. Small firms' current ratio is the only exception. It's possible that they're slower at converting current assets into cash than medium and large firms. This suggests that small firms may be susceptible to higher levels of business risk, which may account for the absence of a positive relationship between working capital and profitability (Kieschnick et al., 2013; S. Ding et al., 2013). The ratios utilized for the performance evaluation are adequate and warrant special attention from both managers and stakeholders. An improvement in the financial performance of

companies may be facilitated by the alliance between the stakeholder theory and the economic dimension of triple bottom line.

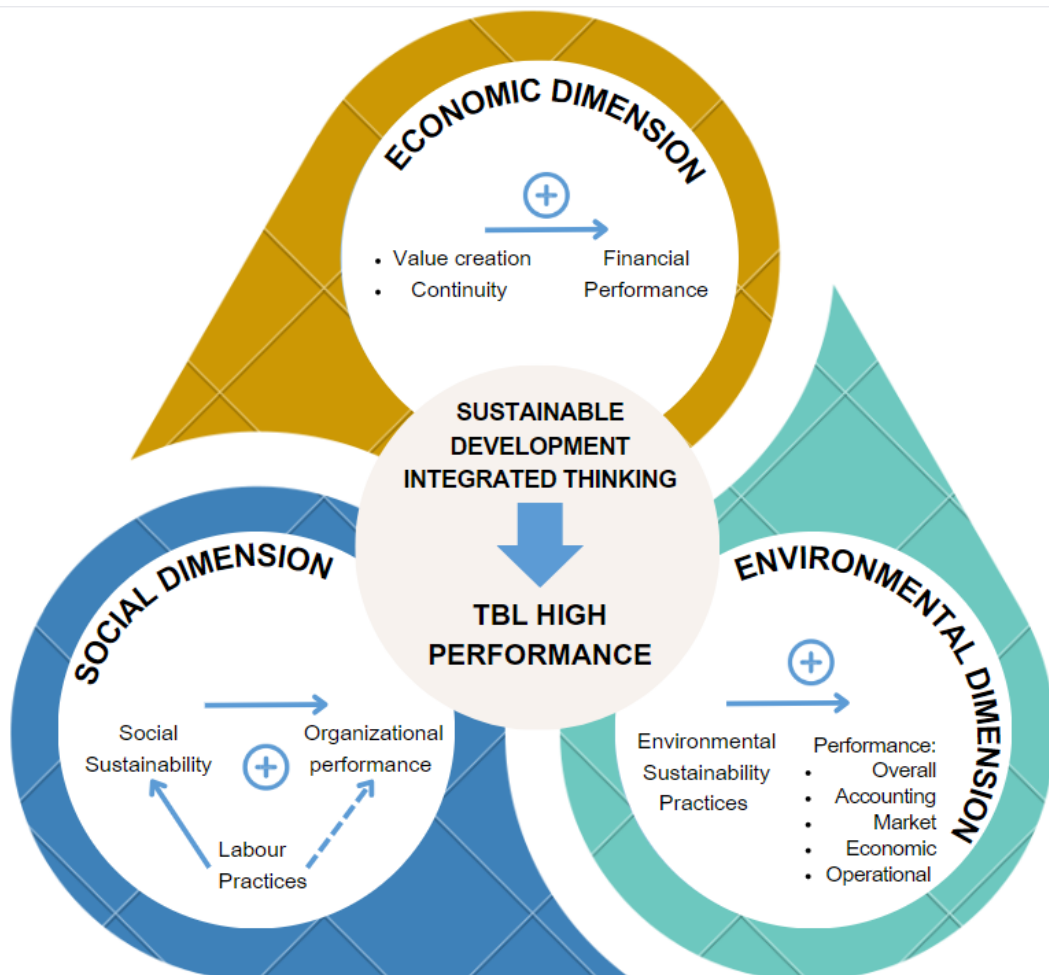
Chapter 5 examines the impact of adopting sustainable practices on companies performance. The results of the research indicate that the triple bottom line's environmental dimension positively influences companies' performance in all five examined performance measures. Namely, the overall, accounting, market, economic, and operational performance. Concerning the overall performance, the adoption of sustainable practices, helps to improve the performance and competitiveness of companies (Ni and Sun, 2019). In regard to the relationship between environmental sustainability practices and accounting-based firm performance, it is concluded that accounting data and data pertaining to environmental practices must be in sync and convey a common narrative, sharing paths, objectives, and goals. The findings of the relationship between environmental sustainability practices and market-based firm performance reinforce the idea that companies are expected to achieve market gains by implementing practices that aim to preserve and conserve the planet. As demonstrated by Ioannidis et al. (2021), eco-friendly program has the potential to enhance both company value and market valuation. The relationship between environmental sustainability practices and economic-based performance, is a win-win situation. The concern for the preservation of the environment and the corresponding measures have not only resulted in a reduction in the destruction of natural resources but also in a reduction in expenses. The reduction of packaging, waste, energy, and resources enhances environmental performance due to the direct link between companies and economic performance, and they are apt to embrace them swiftly (Cankaya and Sezen, 2019; Y. C. Huang et al., 2017). Finally, the results regarding the link between environmental sustainability practices and operational-based firm performance reinforce previous findings that have acknowledged the existence of a positive impact on companies' performance. The examples include sustainability orientation (Danso et al., 2019), environmental sustainability (Sardana et al., 2020; Y. Yang et al., 2018), and eco-innovation (Hojnik et al., 2018). Companies take environmental precautions because they're under pressure from stakeholders and look for ways to boost their profits and improve their positive image. To accommodate environmental concerns, business ethics must be updated. The notion of a short-term profit, disposable and synonymous with environmental destruction, will not hold its strength in the face of a novel vision of creating value that is aligned with an ecological conscience. In corporate ethics, how can it be portrayed that the ideal time to plant a tree was 20 years ago; and the second-best time is now, even if we don't get to enjoy its shade?

Finally, chapter 6, investigates whether social sustainability can influence organizational performance. The findings indicate that social sustainability exerts a positive influence on organizational performance, either directly or as a mediator between organizational performance and labour practices: employee development, employee participation, and equal opportunity. In this manner, the advancement of workers is inextricably linked to the advancement of the organization, thereby enabling the utilization of personal expertise to yield benefits to both organizations and individuals. The increasing importance given to individuality and consideration for differences implies that the utmost care in dealing with employees yields favourable outcomes. The acceptance of all individual's participation and equity among all is a mean to achieve social sustainability, as well as to enhance organizational performance. The findings corroborate previous research findings and demonstrate that social sustainability in companies can have a significant influence on organizational performance (Torkayesh et al., 2022) and be influenced by labour practices, such as employee development (Staniškienė & Stankevičiūtė, 2018), employee participation (Valverde-Moreno et al., 2021) and equal opportunity (Rafiaani, Kuppens, et al., 2020). This further reinforces the need for a paradigm shift in companies. Social sustainability should serve as a valuable resource for companies, facilitating positive organizational transformations and requiring them to change their focus from the immediate to the long term (C. M. J. Lee et al., 2021). It is therefore important to promote proactive social strategies that encourage social collaboration (Lim et al., 2022). Thus, focusing business practices towards sustainability enhances organizational performance (Croom et al., 2018; Nath & Agrawal, 2020). The results pertaining to employee development, employee participation and equal opportunity demonstrate that labour practices exert a positive influence on social sustainability, thereby influencing organizational performance in a positive manner. Employees exhibit superior outcomes when they are incorporated into labour processes and decisions, as everyone seeks to be acknowledged and valued. This occurrence prompts employees to put in extra effort to attain personal fulfilment and enhance their performance, as well as enhancing the performance of their colleagues and societal and corporate metrics. Lastly, the results of this study demonstrate the significance of employees within the group of companies' stakeholders. Because, in addition to defining business strategies and putting them into practice, they are also responsible for executing them. Furthermore, as recipients of labour practices, they possess the ability to exert an influence and contribute to the advancement of social sustainability and organizational performance through their involvement in corporations.

The conclusions of this doctoral thesis, which have been gathered and presented here, bring together diverse perspectives and metrics regarding the influence of triple bottom line dimensions on the performance of companies.

Examining the results obtained, it has been established that the triple bottom line acts as an effective partner in the pursuit of boosting economic development, as well as contributing to the enhancement of sustainable outcomes. The three forces that propel each of the three dimensions of the triple bottom line align towards a common objective, thereby enhancing the high performance of companies. The outcomes of this thesis investigations enabled the development of the model of the Triple Bottom Line Influence on Business Performance, depicted in Figure 15.

Figure 15 - Triple Bottom Line Influence on Business Performance Model.



Source: Own elaboration.

The “Triple Bottom Line Influence on Business Performance Model” highlights that it is imperative that companies adopt an integrated thinking approach that encourages them to consider diverse interconnected factors, including economic, environmental, and social aspects, when making strategic decisions. In order to safeguard their ability to operate in a manner that allows them to drive in a sustainable development manner. The model comprises three primary components.

The first component pertains to the economic dimension, which exerts a significant influence on the financial performance. This influence is rooted in the observed positive correlation between the economic dimension of triple bottom line and financial performance, with a specific emphasis on aspects related to continuity, and value creation. This component emphasizes the importance of ensuring long-term sustainability for business and highlights the potential to enhance accounting procedures and gain support from various stakeholders as a mean to value creation.

The second component relates to the environmental dimension, which plays a pivotal role in advancing sustainability practices within organizations. This dimension is distinguished by its ability to serve as a catalyst for enhanced competitiveness and overall performance, in accordance with the escalating market demand for eco-friendly initiatives. Positive correlations between environmental sustainability practices and economic performance are evident, demonstrating their capacity to lead to cost reductions and the conservation of valuable resources. Additionally, this component emphasizes the importance of eco-innovation and sustainability orientation as a driving force for enhancing corporate performance. The heightened awareness of environmental issues has led to considerable pressure on businesses to integrate ethical considerations into their operations, thereby reshaping profit motives in favour of ecologically-conscious value creation.

The third and final component focuses on the social dimension, which is instrumental in fostering organizational performance. The importance of individuality and inclusivity is emphasized in this dimension, with social sustainability rooted in the promotion of equitable participation and equal opportunities for all stakeholders. The entanglement between the advancement of employees and the success of organizations is highlighted as fundamental feature of this component. This component underscores the imperative requirement for a fundamental transformation in business paradigms towards enduring social collaboration, advocating for the proactive implementation of social strategies. Recognizing the pivotal role of employees in not only defining but also executing business practices reinforces their significance in shaping social sustainability and, consequently, organizational performance.

With this model, a holistic view of companies' operations and impacts is promoted beyond traditional siloed thinking. The ultimate goal of companies requires reflection. The profit or value taken from companies is no longer solely measured in euros. It is anticipated that both present and future generations will contribute to the paradigm shift, as the climate changes that are already being felt, as well as inequalities and social injustice, will have to serve as the guidelines for the new business mindset. The reflections presented, clarified that the much-needed path towards economic, environmental and social sustainability is also a strategy for improving company performance. The analysed strategies have demonstrated that, in the long term, the decision to implement sustainable measures, despite not solely motivated by sustainability, generates returns and facilitates the alignment of diverse stakeholders' objectives. Enabling businesses to attain a high level of triple bottom line performance. Achieving greater positive outcomes while contributing to the Sustainable Development Goals.

7.2 Contributions

7.2.1 Theoretical contributions

In this thesis, five studies are presented. Triple bottom line is at the core of all of them.

In the study of chapter 2, the knowledge about triple bottom line is deepened. The importance of enhancing sustainability was recognized, as it contributes significantly to economic development. The effects and consequences of applying the triple bottom line have been identified as an increase in competitiveness and a simplification of decision-making and planning processes. But we should note that there is the possibility that applying triple bottom line is a way of laundering results. The careful examination of the presentation of triple bottom line results is essential to ensure that organizations are not influenced into adopting behaviours that are not sustainable. Even if the strategy is based on concerns, intentions, and objectives of economic, environmental, and social sustainability.

The study in chapter 3 strengthens the link between triple bottom line and economic development and demonstrates the need for triple bottom line expansion in this field. Because economic development is more than the mere sum of economic advances, it focuses on the well-being of populations, which must be assessed from several dimensions. The analysis presented in this chapter focuses on country performance and provides some insights into studying triple bottom line at this level. It

was concluded that when considering the economic dimension of the triple bottom line, it is essential to assess the vulnerabilities arising from the high public debt. The environmental dimension of triple bottom line requires policies that improve coordination between environmental protection and economic development objectives. And, the consideration of the social dimension of the triple bottom line not only ensures the improvement of the population's standard of living, but also drives economic development.

In the study of chapter 4, the knowledge of triple bottom line is deepened. As a chapter dedicated to the economic dimension of triple bottom line, it was in this dimension that implications for the theory were found. It was identified that when applying the economic principles of triple bottom line, the necessary conditions are given for companies to create value and guarantee continuity. In this way, economic sustainability is achieved. The accounting indicators that allow for their assessment and monitoring must be incorporated into the business model.

The focus of the study in chapter 5 is the environmental dimension of triple bottom line. The analysis presented in this chapter argues that environmental sustainability practices represent a double-win strategy. They contribute to the sustainable maintenance of the environment and to the improvement of the companies' performance. Thus, it is necessary to develop and implement indicators that measure the effectiveness and efficiency of corporate environmental strategies. Considering simultaneously the consequences for the environment and the impact that they can inflict on companies' performance. It is essential that the development of triple bottom line originate legal norms that are withstood by scientific considerations. One of the paths of this development must systemically, formally and systematically cover the environmental interests of the stakeholders in the design and implementation of business strategies.

The study in Chapter 6 focuses on the social dimension of triple bottom line. The findings of this research demonstrate a positive impact of social sustainability on organizational performance. Workers were identified as key stakeholders because they exert great influence on the performance of companies by being present in the design and implementation of business strategies. This makes clear the need to consider the social dimension of triple bottom line as a key element in companies' decision-making process. Despite the social dimension of triple bottom line encompassing numerous stakeholders, it is urgent that the personal principles and goals of those who make companies work on a day-to-day basis are taken into special consideration.

We should note that stakeholder theory accompanied the studies that make up this thesis. Because, when the focus of our attention is on questions that study the

relationship between corporate sustainability and performance, this theory is dominant (N. Hussain, Rigoni, & Cavezzali, 2018). Especially when companies are under pressure from stakeholders to adopt strategies that will influence their performance (Le & Ikram, 2022). In the development of the studies that make up this thesis, we identified several theoretical implications. The chapter 3 study showed that performance assessment and its evaluation make it possible to share information with stakeholders. Thus, enhancing the continuity and value creation of companies. Which demonstrates that sustainable strategic management can provide stakeholders with financial returns. Thus, sustainable economic accounting must be aligned with the objectives of stakeholders. Although, thanks to their different nature, different stakeholders have different interests. In chapter 4, the application of stakeholder theory to issues related to the issue of sustainability was strengthened. By identifying a positive relationship between environmental sustainability practices and business performance, there was an expansion in the field of this relationship. In chapter 5 it was demonstrated that stakeholder theory is a link between labour practices, social sustainability and organizational performance. The role of employees as central stakeholder figures was reinforced. Because these stakeholders have a significant impact on the businesses strategies, processes, and results. Thus, the improvement of social sustainability is a way to obtain benefits for the stakeholders, through the improvement of the organizational performance.

7.2.2 Practical contributions

There are several practical contributions of this thesis. Each of the five studies that make up the thesis presents a distinct set of implications for practice.

The study in Chapter 2 seeks to deepen our understanding of the interaction between triple bottom line and economic development. The study showed that there is still a need for public administration to consider economic, environmental and social measures in their decision and action plans. Attention must be redoubled in relation to environmental measures, as not only are environmental objectives that have to be met, but this is also the path that allows achieving the economic development of nations. The action plan lacks constant articulation, so that all the benefits of triple bottom line can contribute to the economic development. Classic economic development measures should be revised. Also in this study, a theoretical-conceptual model that can serve as a basis for the foundation of strategic and operational options in companies was presented. By allowing the holistic application of triple bottom line, it enhances competitiveness, simplifies decision-making and planning and improves performance.

Chapter 3 presents a macro study that contributes to understanding the influence that each of the triple bottom line dimensions exerts on economic development. And for the alignment between the measures to be taken and the achievement of the Sustainable Development Goals. It is argued that the recurrent vulnerabilities of high public debt limit the government's ability to implement policies that boost economic development. The objectives of environmental protection and the objectives of economic development need to be combined into policies. The development of the social dimension of triple bottom line has a dual effect, improving the living conditions of populations while simultaneously promoting economic development. In order to enhance economic development, governments must focus on projects that increase human well-being. The academy needs to contribute to the discussion of strategies that can lead nations to a development that is economic, environmental, and socially sustainable.

In chapter 4, the focus is on economic sustainability. The need to overcome the technocratic vision of sustainability is defended here. The fact that sustainability is a tangle of issues with different backgrounds and objectives forces managers to think about it more holistically. It is beneficial to include all stakeholders in the design of business strategies. Information on the influence that the economic dimension of triple bottom line has on business performance must be shared. This sharing must be adapted to the particularities of each of the stakeholders. In addition, companies must include in their management control system the systematic collection of value creation and continuity indicators, which serve as a basis for defining and maintaining a sustainable financial strategy. Because, an efficient information system allows companies to assure competitive advantages. It should also be noted that the training of managers should encourage critical thinking and consideration of solving problems in a network, with the participation of all stakeholders. Finally, it should be mentioned that the public administration has the possibility of promoting the economic sustainability of companies by rewarding those that present accounting indicators favourable to value creation and continuity. Some possibilities for these rewards are: non-refundable grants, subsidized financing interest rates, and exemptions from certain fees and commissions.

The environmental dimension of triple bottom line is the focus of the study in chapter 5. Here it was established that business performance, in its different measures, is positively influenced by environmental sustainability practices. In order for the results of applying environmentally conscious strategies to be interesting for the company, it is necessary to create a long-term strategic plan. And that the strategies outlined, and their implementation, are in line with corporate reputation. Despite the potential of these

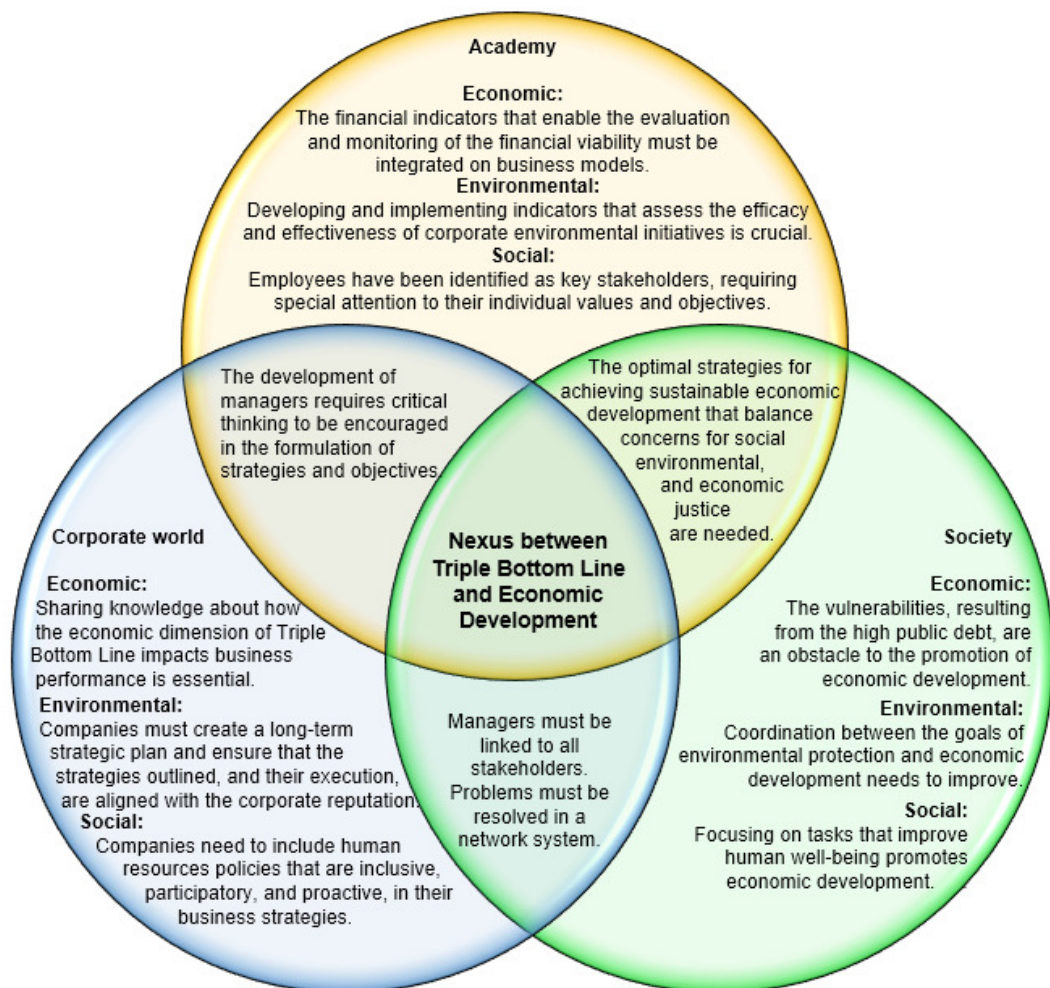
gains being achievable, there is still a need for government agencies to encourage companies to adopt environmentally sustainable practices. These stimuli can come from stricter environmental regulations (Le & Ikram, 2022; S. A. R. Khan & Yu, 2021) or from the creation of education programs that take advantage of the synergies between the various sectors of the economy (Frempong et al., 2021). Also, the adopting of practical green supply chain management (Nureen et al., 2022) and technology development (C. C. Zhu et al., 2022) must be supported by public administration.

Finally, in chapter 6, attention is given to the social dimension of triple bottom line. The results presented demonstrate that social sustainability influences organizational performance. And that labour practices influence organizational performance when mediated by social sustainability. For the implementation of social sustainability to be really effective, companies need to include human resources policies in their business strategies that are inclusive, participative, and proactive. The synergies created by labour practices must also be incorporated into these strategies. In terms of employee development, the following must be ensured: their effective inclusion in strategic planning, the development of their skills, and the sharing of knowledge between companies in the sector, both nationally and internationally. With regard to employee participation, the social distance between higher and lower hierarchies must be shortened. This can be achieved through personal development and coaching actions, which allow for more empathy and stronger bonding between employees. The narrowing of the distance between hierarchies also enhances the participation of the more uninhibited employees. The studied labour practice that most influences social sustainability, equal opportunities, must be increasingly based on transparent and fair selection processes. And investment should be made in clear and fair evaluation and reward systems, with the company providing feedback on the tasks performed and evaluated. It is important for companies to recognize that the establishment of career plans and other benefits (beyond the traditional monetary ones) has the potential to satisfy employees and increase their commitment to organizations.

7.2.3 Contributions systematization

With this thesis, an attempt was made to carry out a differentiated approach to triple bottom line and the challenges it presents for the academy, the business world and society. This approach enabled the systematization of contributions within the intended strands and under the three dimensions that make up triple bottom line 's framework. This systematization is presented in Figure 16.

Figure 16 - Contributions systematization.



Source: Own elaboration.

7.3 Limitations and Future Lines of Research

All scientific investigations inevitably have their limitations, which must be made explicit in order to correctly interpret the results. The presentation of these limitations demonstrates rigor and allows identifying future research lines (Greener, 2018).

The studies in this thesis have the following limitations. In chapter 2 the bibliometric literature analysis is made up of articles from the Web of science, which is one of the most comprehensive databases of peer-reviewed publications, but there are others. The software and the filters used may have caused the omission of literature. It should also be noted that the study in this chapter only refers to the period studied (1996 to April 2, 2023) and the publication of articles is continuous. For this reason, future lines of investigation should consider different databases, such as EBSCO and Scopus. The effects and consequences of applying the triple bottom line to the economic development that were identified in the study must be further analysed. Especially through the model that was presented, whose further study will be very useful.

The limitations of chapter 3 relate to the possibility that there is a problem of reverse causality and that unobserved factors that may simultaneously affect triple bottom line and economic development have not been considered. The Sustainable Society Index was used as a proxy for the triple bottom line and the Human Development Index as a proxy for the economic development, the choice of these variables may have biased the results. Choices related to econometric techniques can also influence the results, as suggested by Dogan and Turkekul (2016). The study in this chapter identified the need for the study of triple bottom line to follow a threefold direction. In other words, the direction of the forces and the role of the drivers of the economic dimension of the triple bottom line must be clarified. The environmental dimension requires further exploration of the conditions that affect it. The factors that influence the social dimension of triple bottom line also require further investigation.

In Chapter 4, it is possible that certain factors were not observed and have the potential to impact both the economic dimension of the triple bottom line and the financial performance of the companies simultaneously. Furthermore, the existence of a reverse causality problem is a possibility. Future investigations should deepen the measures to assess the financial performance of the economic dimension of triple bottom line. It is essential to understand the influence they exert on the performance of organizations in order to be able to identify which are the most appropriate. Understanding how to link the expectations of the parties involved in the information exchange and the manner in which financial data is presented will be beneficial.

The limitations of chapter 5 are linked to the fact that the sample was taken from only one database, the Web of Science. While it is one of the most comprehensive peer-reviewed databases of publications, it isn't the only one. The filtering process may have excluded some literature. Finally, it should be noted that the average effect size studied applies particularly to the studies analysed in this chapter and that the same will be different for another mixture of populations. The influence of environmental practices on all performance measures was established as positive. It is now important to identify the constructs that moderate the relationship between environmental practices and the performance of companies. Other paths for future investigations are the exploration of eco-efficiency and eco-efficiency of companies. It is essential to understand whether it is possible that the high costs associated with certain environmental practices can be distributed to stakeholders external to the companies.

The study of chapter 6 of this thesis is based on the perceptions of Portuguese employees. This is a limitation of this research, whose generalization must be made bearing in mind the macroeconomic scenario that occurred during the study. Other limitations are related to the voluntary participation in the sample (which may not include the most dissatisfied workers) and to the three work practices studied (different practices can lead to different results). This is why future lines of investigation should consider other constructs of labour practices. Sectoral studies should also be considered which, by focusing on different industries, will make it possible to assess more specific implications and compare sectors.

7.4 Thesis outcomes

The investigation of this thesis contributed to the body of literature that explores the relationship between triple bottom line and economic development. Part II of this doctoral thesis consists of five chapters, whose contents led to five research investigations. The outcomes of this investigation include scientific publications, published in journals indexed in the Web of Science or Scopus; and participation in conferences, whose proceedings are indexed in the Web of Science or Scopus (Table 20).

Table 20 - Thesis outcomes.

Published chapters				
Chapters	Articles	Journals	Impact factor 2022	Scopus Quartile 2022
2	Triple Bottom Line, Sustainability, and Economic Development: What Binds Them Together? A Bibliometric Approach https://doi.org/10.3390/su15086706	Sustainability	3.9	Q1
3	The Key to Sustainable Economic Development: A Triple Bottom Line Approach https://doi.org/10.3390/resources11050046	Resources	3.3	Q1
5	A Meta-Regression Analysis of Environmental Sustainability Practices and Firm Performance https://doi.org/10.1016/j.jclepro.2023.139048	Journal of Cleaner Production	11.1	Q1
6	The contribution of the labour practices to organisational performance: the mediating role of social sustainability	Business Ethics, the Environment & Responsibility	2.1	Q1
Conferences presentations				
Paper	Conference	Host entity	Date	Location
Triple bottom line, sustainability and economic development: theoretical insights and the research agenda	ICOPEV 2022 – International Conference on Production Economics and Project Evaluation	Polytechnic Institute of Castelo Branco in partnership with the School of Engineering of the University of Minho	29 – 30 September 2022	Castelo Branco, Portugal
The Key to Sustainable Economic Development: A Triple Bottom Line Approach	ICABM 2022 - International Conference of Applied Business and Management	ISAG - European Business School in partnership with the Research Centre for Business Sciences and Tourism (CICET-FCVC).	14 – 15 July 2022	Porto, Portugal

Source: Own elaboration.

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ANNEX I

Sustentabilidade Social das Empresas

O presente estudo está a ser desenvolvido no âmbito de uma tese de doutoramento em Ciências Empresariais, na Universidade Portucalense Infante D. Henrique. Tem como objetivo geral avaliar a perceção que os trabalhadores têm sobre a sustentabilidade social das empresas. A sustentabilidade social pode ser compreendida como a capacidade de gerar rendimentos sem perder o foco na redução das diferenças sociais a fim de melhorar a qualidade de vida da sociedade.

Ao preencher o questionário que se segue está a dar o seu consentimento na participação deste estudo, permitindo a utilização dos dados que de forma voluntária fornece, sendo certo que apenas serão utilizados para investigação e tratados de forma confidencial.

O seu preenchimento demorará 4 a 5 minutos.

É de toda a conveniência que responda com o máximo de rigor e honestidade. Não há respostas certas ou erradas relativamente a qualquer dos itens, pretende-se apenas a sua opinião pessoal e sincera.

Tomei conhecimento do anonimato do questionário e autorizo o tratamento das respostas para fins de investigação científica?

Sim

Não

1. Características sociodemográficas:

Sexo:

Feminino

Masculino

Não-binário

Idade:

17-25 anos

26-35 anos

36-50 anos

51-64 anos

+65 anos

Nível de escolaridade:

- Ensino secundário
- Licenciatura
- Mestrado
- Doutoramento
- Outro

Sector de atividade da empresa onde trabalha

- Agricultura, produção animal, caça, silvicultura e pesca
- Alojamento, restauração e similares
- Atividades de saúde humana e apoio social
- Atividades financeiras e de seguros
- Atividades imobiliárias
- Comércio por grosso e a retalho
- Construção
- Educação
- Eletricidade, gás e água
- Governo, defesa ou administração central
- Indústrias extrativas
- Indústrias transformadoras
- Transporte e armazenagem
- Outros sectores

Funções que ocupa

- Estagiário
- Trabalhador não qualificado
- Trabalhador qualificado
- Gestão intermédia
- Gestão de topo
- Proprietário

2. Perceção dos Funcionários

Para cada grupo de afirmações avalie o seu grau de concordância usando a escala de 1 a 5:

1 - Discordo totalmente 5 - Concordo totalmente

2.1 Desenvolvimento dos funcionários

- | | 1 | 2 | 3 | 4 | 5 |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 2.1.1 A empresa garante oportunidades para que os colaboradores desenvolvam as suas competências gerais e profissionais. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2.1.2 O desenvolvimento de competências dos funcionários é orientado para as necessidades futuras. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2.1.3 A empresa garante oportunidades de participação de colaboradores em feiras ou em estágios. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2.1.4 A empresa aplica formas diferentes para o desenvolvimento dos funcionários. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2.1.5 A empresa incentiva constantemente os colaboradores a desenvolverem as suas competências. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

2.2 Participação dos funcionários

- | | 1 | 2 | 3 | 4 | 5 |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 2.2.1 Os funcionários partilham os seus problemas pessoais com os seus chefes. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2.2.2 Os funcionários partilham os problemas relacionados com o trabalho com os seus chefes. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2.2.3 Os funcionários dão sugestões sobre a melhoria dos processos da organização. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2.2.4 A empresa incentiva os funcionários a assumir a responsabilidade pelas suas decisões. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2.2.5 A empresa incentiva os funcionários a dar sugestões sobre a melhoria dos processos na organização. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

2.3 Igualdade de oportunidades

	1	2	3	4	5
2.3.1 O sistema de compensação é compreensível para os funcionários.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.3.2 O sistema de compensação é justo.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.3.3 Os funcionários recebem o mesmo pelo mesmo trabalho.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.3.4 A empresa garante oportunidades iguais de desenvolvimento pessoal para os funcionários.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.3.5 A empresa garante igualdade de oportunidades para todos os candidatos durante o processo de seleção.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.3.6 A empresa garante oportunidades iguais para homens e mulheres avançarem nas suas carreiras.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3 Medidas de desempenho

Para cada grupo de afirmações avalie o seu grau de concordância usando a escala de 1 a 5:

1 - Discordo totalmente a 5 - Concordo totalmente

3.1 Trabalho justo

	1	2	3	4	5
3.1.1 O meu salário é justo.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.2 A minha habitação é boa.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.3 Estou seguro no trabalho.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.4 Estou a aprender novas habilidades.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.5 Eu sei quem é o meu representante sindical e/ou dos funcionários.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.6 Os homens e as mulheres são tratados igualmente no trabalho.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.7 Tenho tempo para conversar com os meus colegas de trabalho.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.8 Posso conversar com o meu chefe sobre as minhas ideias de melhoria das tarefas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.9 Eu tenho acesso a boa comida.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.10 O empregador ajuda as famílias a obter as coisas de que precisam (por exemplo, escola para crianças).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.11 Eu posso conseguir uma promoção.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.12 Eu recebi uma boa formação para o meu trabalho.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.13 O meu trabalho ajuda-me a alcançar as coisas que quero na minha vida.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.2 Sustentabilidade social

	1	2	3	4	5
3.2.1 O processo de resolução de disputas do trabalhador é eficaz.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2.2 Os funcionários são capazes de falar uns com os outros sobre os seus interesses e aspirações.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2.3 Existem bons sistemas para garantir que os trabalhadores sejam tratados de forma justa.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2.4 As opiniões de pessoas de diversas origens, em termos de género, etnia, idade e nacionalidade, podem ser úteis para a tomada de decisões.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2.5 Convivo com pessoas que não têm a minha profissão.					
3.2.6 É importante manter boas relações com os membros da comunidade.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2.7 É importante manter boas relações com pessoas diferentes de mim em termos de género, raça, nacionalidade, interesses e aspirações.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2.8 A maioria das pessoas na minha comunidade são confiáveis.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2.9 A liderança no meu sector de atividade é confiável.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2.10 Sou capaz de expressar adequadamente os meus pontos de vista sobre a sustentabilidade para a sociedade em geral.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2.11 Sou capaz de trabalhar com pessoas que têm visões de sustentabilidade diferentes das minhas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4 - Funcionamento da Empresa

Para cada grupo de afirmações avalie o seu grau de concordância usando a escala de 1 a 5: 1

- Discordo totalmente a 5 - Concordo totalmente

4.1 - Desempenho organizacional

1 2 3 4 5

4.1.1 A empresa tem uma vantagem competitiva no seu crescimento de vendas.

4.1.2 A empresa tem uma vantagem competitiva na sua participação de mercado.

4.1.3 A empresa tem uma vantagem competitiva no seu crescimento de lucro.

4.1.4 A empresa tem uma vantagem competitiva no seu retorno sobre o investimento.